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Columbia University Quarterly



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Columbia University Quarterly

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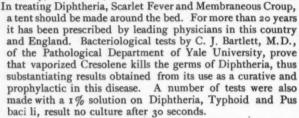
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COLLEGE OF PHYSICIANS AND SURGEONS, FIFTY-NINTH STREET.

COLUMBIA UNIVERSITY QUARTERLY

Vol. III-MARCH, 1901-No. 2

PREPARATION FOR THE STUDY OF MEDICINE

THE history of medical education in the United States is an interesting chapter in general educational history, and it is still in the active process of making. Moreover, just as the biologist frequently finds persisting representatives of the steps in an evolutionary series, so the historian may find still existent in different parts of this country the various types of educational methods that have been employed by the nation in the past in the training of its physicians. In remote regions the boy who would be a doctor still learns his medicine, in part at least, from his preceptor in the latter's office and in the sick-room. The primitive type of medical school, the proprietary school, organized frequently as a commercial enterprise and owned and controlled by the doctors who compose its faculty, still predominates in those parts of the country that are less advanced educationally, and it has not ceased to exist even in the centers of educational culture. The more progressive and usually best-equipped schools are now as a rule joined to the universities, and, as is to be expected, the types of university medical schools vary as do the universities themselves. The great majority of the one hundred

and fifty-six schools now existing in this country offer a course of instruction extending over four years. A few cling to three years. But the two-year type of school, which was so prevalent even two decades ago, has now

happily become extinct.

It must be expected that, with the different degrees of culture, the different demands and needs of the people, and the different educational systems existing in different parts of the United States, the requirements maintained by the colleges for the admission of young men to the study of medicine, as with other professional study, must needs be different in different medical schools. Whether a uniform standard of admission requirements be ultimately a desideratum, is a question worthy of discussion. The practice of medicine involving, as it does, the matter of life and death and the physical status of the people, it would seem a priori that only the best possible training that medicine could afford should be demanded of the physician, and the best possible training would presuppose an adequate preparation for such training. But the ideal must ever be beyond the actual, and owing to the deficiencies of the preparatory schools an adequate preparation cannot always be demanded. Hence the establishment of a uniform standard of admission to medical study is at present impossible, and will for a long time continue to be impossible. Within the proprietary schools, where the sole source of pecuniary income is the students' fees, there is always danger of letting down the bars and letting in the flock. The standard of admission is in general the highest in those university schools that happily are not wholly dependent upon the school's own earnings. But even here the idealism of the teaching body must be held in check by the stern realism of the board of trustees.

With respect to requirements established by the state for the protection of its citizens against medical malpractice and quackery, the case is not altogether satisfactory. It is true that a majority of the states of the Union have provided that a special examination shall be passed before the graduate in medicine shall be admitted to practice. But comparatively few states have sought further advisable and legitimate protection by the legislative enactment of requirements preliminary to the undertaking of medical study. Where existing, such laws fix the minimum only and leave the schools free to add whatever is desired. Most frequently such legalized minimum is merely a competent common-school education, and in no case does it exceed that which may be supplied by the high school. Thus New York, whose requirement is one of the highest, demands the equivalent of a satisfactory course of four years in the high school; and of the forty-eight academic "counts" which the candidate must secure, thirtysix must be obtained before entering upon the first year of medical study, and the remaining twelve before entering upon the second year. But whatever the state has done or left undone, the fact remains that the requirements for the undertaking of medical study vary infinitely. Two of the schools have adopted a college course as a prerequisite. The obvious advantage of this cannot be gainsaid—that, other things being equal, when the student becomes the doctor he is a better doctor than he who has not had the college training. The common objection, that worthy individuals are thus excluded from the best schools, will not outweigh this advantage and will not prevent the number of such schools from increasing in the early future. In fact it is entirely probable that only the financial difficulty, the great expense of providing the best medical education for a limited number of students, prevents early similar action by many of the leading medical colleges.

With all this existing heterogeneity as to the prerequisites for admission to the study of medicine, it must be acknowledged that the matter is in a very unsatisfactory state and that a betterment is sorely needed. Moreover, it is

very evident to those who are engaged in medical instruction that many of the young men who enter upon the study do so with no adequate fore-knowledge of what constitutes the best preparation for it. Year after year the same mistakes are repeated by successive classes, and this happens even when the prospective students desire and are able to acquire the best possible preparation. It may not be amiss to consider, first, what branches of study are preëminently advantageous to him who intends to enter upon this branch

of professional work.

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Of these branches, be they few or many, to no one should be given more prominence than to the subject of Englishthe ability to appreciate, to speak, to write, to understand, good English. The longer becomes one's experience the more vital does this seem, and it is impressed upon one the more because of the serious lack of this ability among American youth, be they college-bred or only school-bred. The despairing cry of the college examiner, "Give me English, or give me death!" finds an answering echo in the breast of every examiner in the medical schools. The examination papers of even those who are graduates of the colleges, and even those colleges that, recognizing the need of which I write, make the study of English especially prominent, too often teem with grammatical errors and rhetorical crudities. Even the ability to make a plain statement of facts in simple language is frequently absent, and style and literary sense are conspicuous by their rarity. In these days of the wonderful growth of the science and art of medicine, when every physician feels that he must write his book or his occasional article for the journal, and medical literature is increasing in bulk at an alarming rate, the necessity of being able to write according to the accepted canons of good literary taste is evident; and an examination of the medical literature of the day makes equally evident the fact that, in spite of many exceptions, good literary taste there is sadly wanting. This lack should not

be laid at the door of the physician himself, but at the door of those who are responsible for his preliminary education. I would not attempt to say where in the course of his education, or how, the desired betterment should come in. That it should be introduced in his youth is obvious, though I sometimes feel that no more effective improvement could be made in our medical schools than the addition to their

faculties of chairs of English.

The consideration of the question of English suggests the question of the desirability of a knowledge of other languages on the part of the student undertaking the study of medicine. And here it may be said that medicine as a science and an art is not bounded by geographical lines. It is nothing if not cosmopolitan. It is not troubled by vexatious questions of expansion, of the tariff, of free trade and protection, of trusts, and of patents. Whatever of discovery or advance is made by any member of the profession is given freely to his fellow-members, and everyone is free to use the contributions of every other. The improvements in operative procedure made by the surgeons of New York are soon known and made use of in London and Paris and Berlin, while the clinicians of Vienna contribute methods for the cure of the sick of New York, and Chicago, and San Francisco. In order that this cosmopolitan character may be maintained, medical men must perforce read medical literature in other languages than their own. Fifty years ago the American medical student sought and found in Paris the opportunities for more advanced study than his home school afforded him. French medicine was then prominent, and the progressive American physician required a reading, if not a speaking, knowledge of the language of Claude Bernard, Trousseau, Louis, Andral, and Malgaigne. But now, outside of English-speaking peoples, the greatest contributions to medicine are "made in Germany." Hence the young doctor who wishes the wider outlook

that a year or two of graduate study is sure to give him goes rightly to the German universities and hospitals; and no American physician, who is not content with being merely a follower, can afford to neglect the reading of

German medical literature in the original.

But if the doctor requires German, the student who would be a doctor requires it also. Much German reading for the student is not necessary, for there is a wealth of English text-books in all departments of medicine, which are compends of the world's best knowledge. But the student's horizon should not be marked by the confines of the textbook. When later he has become a practitioner he will find that the text-book is, and must always be, behind the times; that the living, daily life of his specialty is recorded in the journals, and that to the journals he must constantly turn if he would be a leader. Most young men are, or should be, reasonably mature when they enter upon the study of medicine, and most of them are, or should be, competent to take up that study as they are to practice it later. It is a harmful mistake to inculcate in them methods of study which they must abandon when they leave the halls of their alma mater. In their student days, if ever, they should be taught to go to the sources of the knowledge of the text-book writers, to learn methods and conditions as well as results; critically to study protocols, and to decide for themselves whether the logic of the investigator is false or true. I venture to say that there are few progressive teachers in our medical schools who are are not hampered by the prevalent lack of ability among their students to read medical articles in the German tongue; and it is not rare to find among them those who believe a reading knowledge of the German language to be the most important prerequisite to the undertaking of medical study. I should not be inclined to adopt so extreme a view, but I should place German high among the desirable prerequisites. In the present days a knowledge of French is not [1001]

so much demanded, but the man who would be fully equipped to follow medical science, of whatever nationality he be, like the follower of any other branch of natural science, ought to possess a working knowledge of the three main vehicles of the world's best scientific thought, the English, the German, and the French tongues. Italy, Spain, and Russia contribute most importantly to the world's medical literature, the two former countries frequently in French, and the latter frequently in either French or German.

In favor of the classics as prerequisites for medical study much might be said, but this would be mainly a repetition of the well-known arguments in favor of their study in general. In the first place, there may be cited their pronounced and acknowledged general educational value. Secondly, of almost equal importance is the fact that they constitute the basis for the best and broadest culture. And, thirdly, it may be mentioned that all the ancient discoveries, which form the foundation of medicine, together with those of the Renaissance, were communicated to the world in the Greek and Latin tongues, and medical literature is to-day saturated with Greek and Latin terms. For these reasons. if for no others, the prospective student of medicine should. not foregoa classical preparation. And this ought to be such as to give him a good reading knowledge of the Latin language. Regarding the question of Greek, I am forced to acknowledge, though with a lingering regret, the cogency of those arguments that would make the noblest language of ancient civilization the exceptional rather than the customary possession of those who follow modern science.

In considering the question of preparatory science it must be borne in mind that medicine is a science—a complex combination of the physical, chemical, and biological sciences—applied to the study of man's body in a diseased condition for the practical purpose of restoring that body to its normal state. As such, medicine ought to be preceded by a study of the essentials of physics, chemistry and biology. Such a prerequisite can readily be demanded by those schools that require a preliminary college course. By others it is not so obviously possible, owing to the lack of good teaching of these fundamental sciences in the secondary schools. The gap may be filled, if late, by the requirement that such subjects be studied after entrance into the medical school; and, in fact, the College of Physicians and Surgeons has done this with excellent results in the case of physics and chemistry. Such an arrangement must, however, be regarded as provisional, to be replaced as soon as possible by the more natural order. It is to be regretted that full courses in physics and chemistry, adapted to the comprehension of adults, are not rigorously demanded by all our medical schools, high and low, either as prerequisites or as very early constituents of the student's professional study. There is no surer way of obviating an undue and harmful reliance by the physician on empiricism.

In physics such a course should include, or presuppose, a training in elementary mechanics, should include a training in physical measurements, and should cover the customary ground of general physics-sound, light, heat and especially electricity. In chemistry a knowledge of general chemistry is indispensable; and hardly less important is qualitative analysis, while some training in quantitative analysis is of great value. The recent development of physical chemistry and its growing importance in medical problems make some knowledge of its principles also a desideratum. It can hardly be said that the case of biology is much less urgent. It cannot indeed be denied that competent physicians are being trained daily without the aid of a fundamental grounding in the elements of biology, but to the argument drawn from this fact it must be replied that those physicians must ever remain narrow unless by subsequent study they supply their deficiency in this direction. The sciences of physiology and pathology should permeate

all medical study, and of these the former has already become, while the latter is rapidly becoming, so comparative in method that a proper comprehension of them presupposes a knowledge of at least the elements of biology. And by the term "elements of biology" I mean such matter as is customarily included in the year's course that is so widespread in the colleges and is commonly designated as general biology. Such a course customarily includes the elements of general zoölogy, general botany, general physiology, an introduction to the study of bacteria, and frequently and advantageously an introduction to vertebrate embryology. Such a course must be in fact regarded as the minimum desideratum in biological science for the prospective medical student. A wider training, to include more special zoology, the comparative anatomy of vertebrates, the elements of histology, of cytology, and of neurology, and a fuller consideration of such subjects as heredity and evolution, will insure a still better and broader basis, and will powerfully aid in a quicker and surer comprehension of the broad principles of rational medicine.

One factor in the scientific training of the prospective medical student cannot be too strongly insisted on: that is, that the laboratory method should be made all-prominent. The superlative value of this over the method of the textbook is so evident and is now so widely recognized that it is superfluous to discuss the general subject here. The prospective medical student derives a special advantage from practical work, not simply because of the fact that he obtains thereby a more rational training and a more vivid idea of the basal sciences, but largely because the method of all medicine, whether for the student or the practitioner, is preeminently that of the laboratory, the method of close observation and careful manipulation, of dealing with things, not words. No more unfortunate condition can be imagined than that of the student entering upon such work equipped only with the knowledge gained from his books, and with no conception of the nature and importance of the method that confronts him.

A special word may here be said regarding the position of the science of physiology in its relation to medicine. Physiology has developed in the past as a science of the human body and as one of the most important of the medical sciences, and it holds to-day this honorable position. Its habitat has been from the first chiefly within the walls of the medical schools. But long ago it overstepped its medical boundaries, and it has become the science of the living process, wherever and however exhibited. majority of its followers study it for what it yields in itself, quite apart from what it may mean in the cure of disease or in other applications. Thus it has become one of the pure sciences, and it stands in human culture for all that pure science in general stands for. In harmony with this great development along non-medical lines, it is not unnatural to suppose that in the future physiology may gradually become a non-medical branch of study, like zoölogy, botany, psychology and anthropology, and that in this form it may obtain its greatest following. In a few of the American universities it has already become an important branch of scientific study outside the medical faculty, and the results justify its extension in this direction. Naturally this will not remove it from the medical curriculum. But the pure science would become one of the most important preliminaries to medical study.

I have thus considered English, German, French, Latin, physics, chemistry, and biology, as the most essential of the prerequisites for the undertaking of the study of medicine. Accepting this judgment, the problem confronts the prospective student: where and how shall he acquire his preparation in these branches? Considered by itself and quite apart from such practical questions as those of cost, age, and intellectual ability, this problem appears simple. Other things being equal, the better the preparation the

better the result. Training of a certain grade in all the essential branches may be obtained in the secondary schools, and such training may be excellent. But it is evident that really adequate training cannot be had outside the colleges. And a little consideration will make it equally evident that not less than two, and still better three. years should be spent in college in preliminary study. In other words, if the young man would enter on his professional study fully equipped to master its intricacies and details and derive the best possible result from its training, he should do so with a college course behind him. Moreover, from the standpoint also of the course as given in the best medical schools, a preliminary college training is rapidly becoming a desideratum, if not a necessity. Within little more than two decades the medical course in most of our schools has been extended in length from two years, first to three, and later to four years. This means not simply an increase in the bulk of the knowledge offered to the student, but, much more important than this, an improvement in the quality of the instruction, the introduction of improved laboratory and clinical teaching, of oral "quizzes" or conferences, and of a broader and more philosophical treatment of the various branches of medicine.

In order to derive the full benefit of this improved instruction the student must enter upon it with a good educational basis, such as outlined above, and with a maturity of mind such as a college training would give him. A college preparation is the natural forerunner of the best of the four years' courses in medicine. The example of the two schools in this country that have taken the lead in prescribing a college degree as a prerequisite will naturally be followed by others. Not the least of the advantages to be gained will be the inevitable reaction on the schools themselves, causing a still further improvement in their work. It is true that class distinctions among the schools will doubtless result from such action. But this is never

a valid argument against the establishment of the best. Class distinctions of this nature are "the scare-crows of fools and the beacons of wise men," and they are only to be encouraged, much less to be deprecated. Moreover, it is only in accordance with the principles of human nature that different individuals in entering upon practical professional work will for various reasons seek different degrees of professional training. This is inevitable, and class distinctions among professional schools are equally inevitable. Hence, lest it may be feared that worthy young men may be kept from the study of medicine by the requirement of a college degree as a prerequisite, it should be borne in mind that schools with easier requirements for admission will never be wanting. If the time argument be raised, that the young man who is obliged to pass through college before entering upon his four years of medical training begins his life-work late, I can only reply that this is inevitable and, if not carried too far, is not in itself detrimental. I think that Columbia, by making the senior college year coincident with the first year's work in medicine, and the combined collegiate and professional training to extend over a period of seven years, has solved this problem in a satisfactory manner.

What now should be the nature of the college course that the young man is to take who proposes to enter ultimately upon the study of medicine? That it should lean toward the scientific rather than the classical side is self-evident, but I would not have it too exclusively scientific. One year each of physics, chemistry, and biology is the minimum desideratum of the fundamental sciences, and double that amount, at least in chemistry and biology, would not be amiss. English might advantageously be continued throughout the college course. German, and, if possible, French, should be continued until the student is able to read the scientific literature of these languages readily. For most students I should prefer a year of Latin literature

—not philology—beyond what is customarily required for matriculation. Greek should not be obligatory. Mathematics need not be continued after matriculation. A certain amount of history, economics, and philosophy (logic, psychology and ethics) should be taken, the exact amount beyond a minimum depending on the tastes of the student. I fully sympathize with the modern tendency to make the college work from the matriculation onward largely elective, but election by groups, the composition of the groups being decided by the teaching body, as suggested and carried out so well at Johns Hopkins University, seems to me preferable to the election of single subjects. To ensure the best results it is desirable that the student on entering college should have decided what his life-work is to be.

I cannot end this paper without an urgent plea for the maintenance of a high standard of qualification for entrance on the study of so all-important a sphere of human activity as is the practice of medicine. The physician is the guardian of human life. His work is a serious, even sacred work, for it touches not only the physical, but the moral welfare of the people. He knows man's inmost secrets, and, more than any other's, his word is law. In times of emergency, when death is combating life, he is the one human agent to whom all turn for help. There is no calling in which there is a greater demand for accurate observation, far-reaching knowledge, balanced judgment, discerning prophecy, and confident courage. Here only the best is desired, and the best is always in demand. The harm which the mediocre is capable of doing is great, yet the mediocre, knowing the power that the physician wields in society, exists in abundance. The profession is greatly overcrowded. Already Germany is proposing to extend the course of medical study from four to five years, and such a change will no doubt conduce to great good. I venture to think, however, that at least in America a further extension of the medical course proper is not so much demanded at present, nor would it be so effective in producing better physicians, as the elevation of the standard of admission to the medical schools. This, it seems to me, is the great need of the hour. There can be no fear of inaugurating too high a standard. Our greatest danger lies in allowing our clever, headstrong, impatient American boys to rush in where angels fear to tread.

FREDERIC S. LEE

THE COLLEGE OF PHYSICIANS AND SUR-GEONS THIRTY-FOUR YEARS AGO AND NOW

TOT unlike a new-made officer going into action is the new-made Doctor of Medicine, stepping down from the stage at Commencement to enter upon a life-long contest with disease and injury. Nurse and apothecary are, as it were, experienced soldiers, whose fire is given or held as ordered by his swift decision, based not upon routine but upon the application of general principles to the special case before him. What shall such a man be taught, and how shall he be taught it? These are the two problems of medical education. Nor will it suffice that the young physician have learned to do well what his teachers did before him; he must differ from a trained nurse in kind, not in degree; he must be fit to discover, to invent, to increase the effectiveness of his calling, lest it fall again, as in the time between the Greeks and the Renaissance, into a long trance of learned docility.

So strongly have medical teachers felt the urgency of their duty to teach better; so wide a gap has always separated what is desirable in teaching from what is possible, that the effort to narrow that gap has produced remarkable changes, remarkable progress, within the lifetime of men who are still active. It is proposed to glance



FORMER COLLEGE OF PHYSICIANS AND SURGEONS, FOURTH AVENUE AND TWENTY-THIRD STREET.



at some of these changes, as shown by the methods of the College of Physicians and Surgeons, of which the present writer is a graduate, and which he has served for more than

thirty years.

The young man who, like him, brought home to New York in 1866 an "A. B. diploma," and who meant to study medicine in the city where he wished to live, first chose his medical school, and next had to make another important choice-that of his medical "preceptor." The law then made this personage indispensable; he must be a doctor of medicine, and his certificate, vouching for three years of medical study under his own direction, must be filed with the faculty of the medical school before the latter could lawfully confer the degree of M.D. upon the candidate. The preceptor's services might be nominal and without reward, or they might be substantial, often in return for a substantial annual fee. He frequently played an important part in really directing and aiding his pupil's work during the four months between the end of the five months' session of the medical school and the beginning of the heats of July. Such a preceptor taught one or more of his students to make the chemical and microscopical tests used in the diagnosis of renal diseases; he called for their aid in many instructive ways in his private practice, especially if he were a surgeon; and he often was one of a group of colleagues who carried on systematic "quizzing" of their joint band of pupils in the evenings. In short, the student was his preceptor's apprentice, and might easily, as the present writer remembers with gratitude, owe to his preceptor the early opportunities upon which a career is based. When the relation was a real one, it was regarded with pride both by the older man and by his pupils.

In New York in 1866 the only requirements for admission to a medical school were the matriculation fee and the student's autograph. The minimum prerequisites for receiving the degree were very simple, even in the case of

a school of such high standing as the College of Physicians and Surgeons. Beside the preceptor's certificate aforesaid, the candidate was required to file satisfactory evidence that he was "twenty-one years of age and of good moral character"; to file tickets representing "two full courses of medical lectures," of which at least the later course had been attended at the college conferring the degree; and to pass a satisfactory examination in the " seven branches of medicine," the lectures upon all of which constituted a full course. These seven branches were: (1) anatomy; (2) physiology; (3) chemistry and physics, reckoned as one; (4) materia medica and therapeutics, reckoned as one; (5) pathology and practical medicine, reckoned as one; (6) surgery; (7) obstetrics and the diseases of women and of children, all three reckoned as one. The required lectures were all delivered between the first of October and the early days of March, and were so numerous that attendance upon a full course comprising all of the seven branches was, while it lasted, a heavy strain upon the student.

The system of examination, in its turn, was very simple. Each candidate for a degree, during the last evenings of his last session and not before, enjoyed a tête-à-tête of a few minutes with each of the seven professors in turn, who examined him orally. At a subsequent meeting of the faculty the seven professors voted simply "yea or nay" as each candidate's name was called by the secretary. If there were more yeas than nays, the degree was conferred; if the nays were in the majority, the candidate was rejected, and must be reëxamined, six months later, in all branches, including those in which he had been successful. The minimum cost of a medical education was, in 1866, three hundred and twenty dollars, as against the eight hundred and thirty or forty dollars, which sum up the total required fees of the present four years' course.

Such was the irreducible minimum of requirement with

which each future physician had to reckon thirty-four years ago. But it would be injustice to the teacher or the student of that time to suppose that either was content with such a minimum. It is true that this afforded to the dissipated or to the laziest a far too easy path to a medical degree; but to the great majority of students the slenderness of the formal requirements afforded simply a breadth of "academic freedom," to translate the familiar German phrase, which the men used to further their medical knowledge according to their lights, or those of their preceptors-of course, with very various degrees of assiduity. Even dissection was not formally required; yet a graduate who had never dissected was a rarity, and the college announcements of that day treated practical work in anatomy as a much-desired privilege of which all were expected to avail themselves, although at the cost of a special fee. From such fees, voluntarily paid, a demonstrator and an assistant demonstrator of anatomy received remuneration by no means petty. Practical work in chemistry, in normal and pathological histology, in pathological anatomy, could be had by those who chose; a diagnosis class at Bellevue Hospital was in high favor; the clinics at the college building and at the hospital were well attended, and the various dispensaries were resorted to by students eager to study the cases under the eye of the attending physician. The evenings were largely de voted to attendance upon recitations, conducted either by the preceptors of the student or by special "quiz-masters"; and the competitive examinations for the highly-prized positions in hospitals afforded the same sharp stimulus as at present to the determined and ambitious student.

Nor was this all. By no capable student was attendance completed in two sessions upon the necessary two full courses of lectures, unless a slender purse required him to earn a living at the earliest possible moment. The unwisdom was universally recognized of beginning the study

of surgery and of the practice of medicine at the same time with that of anatomy and physiology. Professors and preceptors alike urged their pupils to distribute over three winters the studies which the law allowed to be finished in two, roughly to grade the course for themselves, and to devote their first year solely to anatomy, physiology, chemistry, dissection, the chemical laboratory, to "courses with the microscope," as they were often called, and, in addition, to more advanced studies in the four untrammeled months of voluntary work which intervened between commencement and the first of July. The same lectures in anatomy, physiology and chemistry, were again attended in the second year, with some dissection; and, in addition, the lectures in materia medica and therapeutics, in pathology and practical medicine, and in obstetrics and gynecology. In other words a full course was taken in the second year. The four branches last named were again attended in the third year, and thus the distribution over three winters was made of the required two full courses, clinical studies being pursued least in the first year, and most in the third year. It was important and valuable that the college and hospital clinics were carried on, informally but effectively, during the months between the end of the didactic lectures and hot weather. The most illogical feature of the scheme thus roughly planned was that the student's second course of didactic lectures in a given theme was identical with the course therein which he had heard the year before.

But even the didactic lectures which the students might attend were by no means limited to those which they were required to attend. Short courses of lectures on many special subjects were delivered in the autumn before the "regular session" began, and longer special courses during the excellent working months which followed its close. Attendance upon these didactic courses was purely optional and was never large; but they were valuable, being given

partly by members of the faculty, and partly, on the invitation of the faculty, by younger teachers, who were eager for this chance to increase their reputation.

It will be seen from the foregoing that the medical study of thirty-four years ago was by no means the skeleton which it appears to those who were children then, and who judge it now by its recorded minimum requirements. These were a skeleton, indeed, but they were covered with the wholesome flesh and blood of voluntary work based upon a freedom of choice, which now is lacking amid all the admirable opportunities of the lengthened and improved curriculum. The dullard and the idler were not then, as now, promptly conditioned or turned away at the end of the first year; they were free to perch indefinitely upon the benches until they could face successfully a majority at least of the final examinations. But students of the better sort worked then as many months in the year as now, and nearly as hard. Even this qualified praise is a compliment to those who now are grizzled; for there does not live a harder-working man than the ambitious medical student of to-day.

How then does he fare at the hands of his teachers, the students of thirty years, or more, ago? How has "the old college," as it is fondly called by its graduates, old and young alike, bettered the training of its pupils? The race of preceptors has for some years been extinct by law, their importance having waned with the increasing thoroughness and system of the schools. The private recitation-class still flourishes. To-day, as thirty-four years ago, the latter part of the total period of study brings daily nearer to an important part of the medical class not only graduation, but the ordeal of the competitive examination for a post at a hospital. This will be conducted by some board quite independent of the faculty of any one medical school—a fact which, while it always stimulates the candidate to work hard, does not always

conduce to wise or even sound methods of private study.

The requirements for admission to the medical school

have risen, since the old days, from nothing to a substantial quantity. A number of years have elapsed since the legislature of New York rightly recognized by statute the fact that a training in medicine should be based upon a good preliminary education. This education is now defined by law and the possession of it must be proven, to the satisfaction of representatives of the state itself, by every medical student, before he can proceed far beyond the threshold of his medical training. The question as to what preliminary training should be expected of one who means to study medicine is dealt with in another article in this number of the University Quarterly. To describe or discuss at length the requirements now made under the law is not the intention of the present writer; but he wishes to record his warm approval of the progressive raising of the standard which has been effected by the authority which, in this matter, represents the state the Regents of the University of the State of New York. It is clear, however, that there still remain three especially urgent deficiencies in the preliminary training of far too many of the students who enter the College of Physicians and Surgeons. Of these deficiencies the first two are a lack of real knowledge of the elements of physics and chemistry, respectively; that is, a knowledge based upon good courses of experiments done by the student himself in laboratories. The third deficiency-a crying one-is an insufficient knowledge of the English language; not in its higher flights, but in its plain, necessary, every-day aspect. From this last deficiency, alas, not even Bachelors of Arts of the best colleges in the United States are invariably free.

But what are the changes wrought in thirty-four years in the education in medicine given by the College of Physicians and Surgeons itself? To discuss these in detail would be to reprint here the matter which fills the pages of the annual announcement of that college -a pamphlet which bears at the head of its title-page these words of happy meaning: "Columbia University in the City of New York." Their meaning is, that on July 1, 1891, by unanimous vote of both boards of trustees, and by due process of law, the College of Physicians and Surgeons became merged in the university with which it had already been in honorable alliance for thirty-one years. This merger followed by seven years the first of those noble gifts of land, buildings, equipment, endowment, by means of which the families of Vanderbilt and Sloane have many times multiplied the power of the medical school for teaching and research. The merger, in its turn, was followed promptly by the cordial assent of the president and trustees of the university to the proposal that attendance upon a four years' course of medical study be required, as soon as possible, of every candidate for the degree of M.D. Such a curriculum has since become an accomplished fact, and constitutes the first of those benefits to professional education which cannot fail to spring from the new life of the medical school as an integral part of the university. To trace with care the various steps by which the teaching of thirty-four years ago has been improved during those years, with the generous and zealous aid of the medical alumni-the establishment of laboratories, the lengthening of the sessions, the better grading of the course, the requiring the attendance of all students upon three sessions, the organizing of intermediate examinations, the making success at all examinations, instead of at a majority, a prerequisite for graduation—all this would be too prolix for this article. Let it suffice to indicate the general differences between the curriculum of the College of Physicians and Surgeons when the present writer was a student there, and its curriculum now, when he is one of its elder teachers.

Then, all the required work of a student might lawfully be done in two sessions of five months each; now it cannot be done in less than four sessions of eight months each. Then the examinations were oral, were few, were all held at the end of the curriculum, and success at a bare majority sufficed for graduation. Now the student's ability to advance with his class is tested by examinations held at the middle or end of each of the four years. These examinations are partly written, but are largely practical. They are numerous; yet no man receives his degree till he has succeeded at examination in every department of study. The repetition of courses, which was inevitable thirty-four years ago, has been abolished. No student now attends the same exercise twice except as the penalty of failure. The required didactic lectures upon the "seven branches," and the optional laboratory courses and optional clinical work of the old times, have undergone fusion, growth, and development into an orderly and much extended system of varied courses, attendance upon all of which is required. a sufficient knowledge of all of which is exacted and tested by examination. Of these required courses some are in themes, such as physiological chemistry and bacteriology, the very names of which, a few years ago, were unfamiliar, or not vet coined.

Throughout the whole series of studies there is now clear and emphatic recognition of the fact that medicine, in the broadest and highest sense of the word, belongs among the natural sciences and must work and teach by their methods. Object-teaching, therefore, is now conspicuous beyond the dreams of the teacher or student of thirty-four years ago. Didactic teaching, whether or not illustrated by demonstrations which many can see at once, is supplemented or replaced either by demonstrations made to groups of students, or by setting each student himself to deal with the object of study, whether in the laboratory, the clinic, or the hospital.

The unsound practice of beginning the study of all branches of the curriculum at once, which was shunned by most even a generation ago, but was nevertheless possible to the needy or the ill-advised, is, of course, possible no longer. The order of studies is now as carefully prescribed as the methods of work. Of the four years of attendance, the first is wholly devoted to learning the structure and workings of the healthy body, and in the case of those who have not acquired elsewhere a real knowledge of the elements of physics and chemistry, to learning these also. The studies of the first year are specified as chemistry, physics, anatomy, normal histology, physiology. In the second year the student's studies of healthy structure and function are completed, and he begins to contrast the body in health with the body in disease, and to learn the means of alleviation or cure. The studies of the second year are anatomy, normal histology, physiology, physiological chemistry, pathological anatomy, bacteriology and hygiene, materia medica and therapeutics, obstetrics and gynecology. The third and fourth years are wholly devoted to the scientific study of childbirth, and of the nature and cure of disease and injury. These themes, so easily summed up and yet so vast, are dealt with both in general and in especial; for though no single practitioner of modern medicine becomes an expert in all of the so-called "specialties," he must be given some insight into these, if only to teach him to know when he may trust himself and when he should seek assistance. The studies of the third year are enumerated as the following: materia medica and therapeutics, general pathology and pathological histology, pathological anatomy, the practice of medicine, diseases of the mind and nervous system, the principles and practice of surgery, obstetrics, gynecology, venereal and genito-urinary diseases, diseases of the eye and of the ear. The studies of the fourth year are the practice of medicine, diseases of the mind and nervous system, clinical pathology, the principles and practice of surgery, orthopædic surgery, obstetrics, gynecology, diseases of children, of the skin, and of the throat and nose.

Vast as is the difference between the curriculum of 1901 and that of 1866, no one can realize better than a life-long teacher how far even the present teaching is from closing the gap between the attainable and the desired, even as regards the subjects now dealt with. Moreover, when one remembers that the knowledge upon which the practice of medicine is based grows like an avalanche, while life and youth do not increase their length from generation to generation-when one thinks of this, it becomes clear at once that in the near future some way must be found by which teaching may fairly keep pace with knowledge otherwise than by adding to the number of required studies. Those which are now required fully occupy the working time of vigorous and able students; far indeed has the pendulum swung from those dangers of capricious and ill-advised choice which beset the large liberty of thirty-four years ago. Yet that large liberty had its value; and, as was indicated earlier in this article, the stringency of requirement which characterizes the present curriculum, no matter how necessary it may be, is certainly not an unmixed blessing.

But apart from the question of how to add new subjects to the curriculum—and this question presses already—there are problems which are solved but imperfectly by the present treatment of the subjects now dealt with. Ample and admirable as are the provisions made for object-teaching, there might be more object-teaching with advantage to certain subjects, considered by themselves, did the opportunity present itself. The proper sequence of the studies, too, is very difficult to arrange. Man is their theme, and his relation to his environment. How artificial is—must be—any parcelling out of such a theme among professors! When for better or worse the share of each has been agreed upon, in what manner, in what order

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shall the several teachers set each his rough-hewn fragment of a rounded whole before the student so as to impart knowledge and not bewilderment? The heart is a single thing, a definite organ, yet incomprehensible till all the rest are understood. But, passing by this first difficulty, let us note that it is for the physiological chemist to analyse the heart; for the anatomist to dissect it; for the histologist to place its tissues beneath the microscope; for the physiologist to study its beat in relation to the laws which the physicist has ascertained. The embryologist notes the development of the heart, and the pathologist the causes of its disorders. These disorders the practitioner of medicine identifies by their symptoms, and treats according to the rules of thera-Yet it is a single diseased living heart the understanding of which a single student must strive to obtain from so many personages! Is it strange that the sound coördination of the work of the teachers during the four years, during a single year, a single month, even within a single department, is a matter of great and perennial difficulty? To meet this difficulty less unsuccessfully than before should be the effort of every progressive medical school. A glance at the announcements of a few of the best schools shows how little unanimity exists as yet upon this subject, and to what striking changes of system the study of it has led some of them-changes of which it is still too early to judge the real effect.

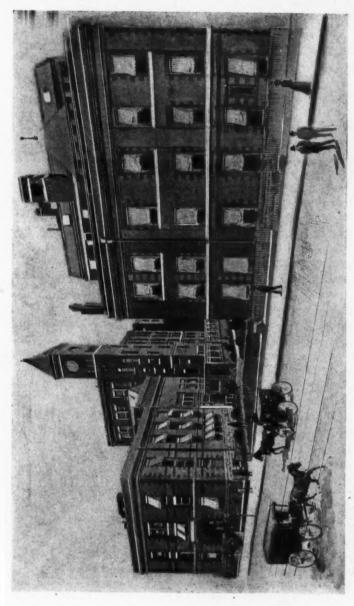
With the foregoing glance at some of the questions of the future and of the present, this brief comparison of the present with the past may close. Ill would fare the teacher of medicine who should have no confession to make of problems unsolved, of questions unanswered; for he would show himself failing to apply to his own beneficent calling the words which Milton said of Truth: "If her waters flow not in a perpetual progression, they sicken into a muddy pool of conformity and tradition."

JOHN G. CURTIS

THE VANDERBILT CLINIC

THE word "clinic" has two different meanings. It indicates, first, a particular form of medical lecture in which a patient is brought before a class of students, and, after being questioned and examined, is made the subject of a discussion; the symptoms elicited being grouped and analyzed, and a diagnosis of the disease present being reached. In such a lecture the teacher goes through the mental process which every doctor has to go through when called to examine a patient, and thus the mind of the medical student is trained to what is afterward to be its daily routine work. There is a practical side to such instruction which is invaluable, and there is probably no better means of teaching medicine than through the clinic. The student will often remember the individual patient better than the abstract disease.

Every distinguished teacher of medicine since the days of Trousseau has taken pains to make his clinical lectures The great fame of such foreign teachers as a success. Billroth and Nothnagel and Leyden and Charcot was attained by their clinical teaching. Probably the most dramatic of clinics was that held by Charcot at the Salpêtrière. There, in a large hall darkened by shutters, with row after row of seats rising at the rear almost to the ceiling, Charcot, seated on a broad stage made brilliant by footlights and calcium lights, would show the various forms of nervous disease, drawing from the enormous hospital a great variety of patients and often contrasting several similar diseases in different patients at the same time. The patient was placed on the stage, the one focus of light in the room, while Charcot would call attention rapidly but with great acuteness to all the salient features presented by the case. Then, with the aid of a lantern, diagrams, photographs and drawings, illustrating the tissues which were affected by the disease, were thrown upon a screen, and everything



VANDERBILT CLINIC.

SLOANE MATERNITY HOSPITAL.

COLLEGE OF PHYSICIANS AND SURGEONS.



was made clear by his marvellously lucid description. At the end one went away with a complete and most graphic mental picture of the malady which had been studied.

And this is after all the object of every clinical teacher, to draw a mental picture for the student, so clear in outline, so finished in detail, that any similar picture which chance may throw in his way may be at once recognized.

Thus diagnosis is made easy.

But clinical teaching to be a success must be methodical. It is not enough to take at haphazard every patient who comes along. The different forms of disease must be studied in an order. Thus for a student it is far better to see in succession all kinds of lung disease, or all forms of heart disease, than to have these mingled. Hence, for any well-organized clinical teaching, it is necessary to have a large number of patients to draw from, for rare as well as common forms of disease must be shown, and one may examine a hundred or even a thousand patients before finding one which illustrates the malady upon which he desires to lecture. Clinical teaching, therefore, depends for its success on access to a large hospital or to a large dispensary, the latter being merely a hospital for patients able to live at home.

And thus the second meaning of the word "clinic" has originated. This is the sense in which the term Vanderbilt Clinic is used—a place where patients able to walk can come for diagnosis and treatment. The Vanderbilt Clinic is situated at the southeast corner of 10th Avenue and 60th Street. It is a large, commodious building of three stories and has a number of rooms devoted to each of the ten departments of medicine. It also contains several large rooms for teaching purposes and an amphitheatre for lectures. Now just as the success of a physician depends upon the high character of his knowledge and skill and upon those qualities of kindness, personal interest and adaptability which secure the attachment and

confidence of the patients, so the success of a clinic depends upon the quality of the physicians and surgeons who have it in charge. If they are skillful, renowned and affable, the poor as well as the rich appreciate their qualifications and seek them. It is not surprising, therefore, that at the Vanderbilt Clinic, where each department is under the immediate care and personal direction of a professor of the College of Physicians and Surgeons, supported by a most select body of assistants, the number of applicants for treatment is enormous.

As the variety of disease, surgical and medical, is very great, it is no small matter to classify the patients who apply, and to direct them to the proper department. This is done in the main hall, where those who enter fall in line and on reaching the desk are questioned as to why they come. One will say because of a cough, another because of paralysis, another because of an injury or a sprain, and thus the clerk can assign them, respectively, to the medical, or nervous, or surgical rooms. This he does by giving a card, and then the patient is directed to the proper

apartment.

By reason of its great floor space the Vanderbilt Clinic can give ample room to each of the ten departments into which its work is divided. When the patient enters the department to which he has been directed he receives a number and waits in his seat till that number is called. He is then taken into a smaller room and into a screened division of it, and is questioned and examined carefully by one of the numerous physicians in charge. A written synopsis of his history is at the same time taken, his case is numbered, he is given a card bearing this number, and a book in which his medicine is prescribed. This book is handed to the druggist, who furnishes whatever is demanded, a charge of ten cents being made for each prescription, which by no means covers the cost of the crude drugs.

From the hundreds of patients daily treated in this man-

ner a few are selected as interesting subjects for the clinical lectures—probably not more than one in fifty who apply. But the large number applying enables a choice to be made and thus any subject selected by a lecturer can be illustrated by several patients. Thus the writer, in conducting thirty-six clinics in a year shows about fifty forms of nervous disease, and often is able to present from four to ten patients suffering from the particular disease under study. The varieties of each affection can thus frequently be demonstrated, and if it is a chronic or progressive one its different stages can be shown.

Another object is attained by the Vanderbilt Clinic which has not received sufficient attention. In these days of specialism the need of consultation by the general practitioner is openly acknowledged, and the public is all too eager for special advice. If the patient is wealthy there is no hesitation either on the part of the doctor to solicit a consultation, or on the part of the patient to demand it. But among the poor every dollar has a double value and the case must be very serious for the family doctor to advise additional expense. The Clinic, however, solves the problem. Many physicians bring or send their patients to it with the object of obtaining a free consultation with the very best authorities, and no one is ever turned away. Thus the Clinic not only furnishes the poor with ordinary attention but furnishes those of very moderate means with proper consultation, and in a way helps the general practitioner who desires aid in the care of these patients, or in the diagnosis of unusual affections. The only return which the physicians in attendance upon the Clinic obtain for their labor is the experience gained. But this is of the very greatest value, as there is hardly any form of disease, common or rare, easy or difficult of diagnosis, which is not seen at the Clinic. Hence there is a great demand for the places as assistants in the different departments, and the "chiefs of clinic" in each department usually secure men of



hospital experience supplemented by study abroad. Every man attends three days in the week for two or three hours each day. These assistants are directed in their work by the chief of clinic, whose other duties are to select the cases for the clinical lecture by the professor, and also to

give special instruction in the department.

For the material is now being utilized for instruction not only by the professor in his weekly lecture, but also by the chiefs of clinic, in what is known as section teaching. It is easy for some features of disease to be shown to a large class at once. Thus the various gaits in different types of paralysis can be shown to a hundred men as well as to one. But the state of the throat, or of the eye, or of the ear, can only be ascertained by inspection by one man at a time. Hence in many of the departments where skillful examinations are to be taught with the use of the stethoscope, the ophthalmoscope, or the speculum, the instruction must be given to the students in groups of from two to ten men each. This is the work of the chiefs of clinic and of the special instructors, and here again the value of a large number of patients to accomplish the purpose of teaching becomes evident. The question naturally arises whether patients object to such examinations. One might suppose that they would. But as a matter of fact they do not. Some are interested in learning what is thought of their malady. Others realize that the benefit received from skillful treatment is but poorly requited by the extra time given up to the examination. And all admit when it is put before them that the least they can do in return for advice is to allow their cases to be studied.

Much has been said lately regarding the abuse of dispensaries by those able to pay, and such abuse undoubtedly exists. But in the Vanderbilt Clinic, where the object of the institution is a double one, both to treat the patient and to instruct the student, the question of abuse does not often arise. If a patient does not pay in dollars he often pays in service as illustrating a rare disease. And if he is brought or sent by a physician for a consultation, as is often the case, the mere fact of coming to the Clinic is proof of inability to pay a high special consultant's fee. Furthermore there are many people of moderate means who could afford a single visit to a specialist but could not afford to pay for continued special skillful treatment, such as electrical applications, or massage, or surgical appliances or progressive schemes of therapeutics to eye, ear, throat, or other organs. It seems only right that these persons should be attended to properly at the Clinic, even though their appearance might lead one to suppose them able to pay. Hence I do not regard the matter of dispensary abuse in connection with the Vanderbilt Clinic as one requiring any serious comment. That the Clinic is doing a tremendous work in all departments of medicine is evidenced by the record of attendance, which is here given for the past twelve years.

Year.	No. of individuals applying for treatment.								Year.		No. of individuals applying for treatment.					
1889 .								29,723	1895 .						. 46,449	
1890.								34,690	1896.						. 54,667	
1891 .								35,715	1897 .						- 53,413	
1892 .								35,657	1898 .						. 48,556	
1893 .								39,569	1899 .						- 48,742	
1894 .								41,871	1900.						. 48,967	

This, however, does not convey any idea of its benefit to medical science. The medical literature of this city, however, testifies abundantly to this. Many careful studies of disease have been made within its walls, the results of which have been published widely in articles, monographs and books. Some of these have made distinct advances in our knowledge and have added to the progress of medical science. Thus the Clinic is of constant service not only to the poor who are cared for and to the physicians who widen their experience within its walls, but also to the medical profession of the country and of the world.

M. ALLEN STARR

HIGHER COMMERCIAL EDUCATION

NE of the most noteworthy of recent educational phenomena has been the awakening of interest in higher commercial education and the consequent establishment of schools and departments of commerce in connection with several of our institutions of liberal culture. Five years ago the Wharton School of Finance and Economy was the only school of the kind in the entire country. Courses of study which meet the same need are now offered by the Universities of California, Michigan and Wisconsin, the University of Chicago, New York University and Dartmouth College. Columbia University has almost completed preparations for the establishment of a School of Commerce, several other institutions are taking steps in the same direction, and it is quite within the bounds of probability to predict that the time is not far distant when every institution of liberal culture will offer a general course of instruction which will be of practical usefulness to the man who devotes his life to the higher forms of business enterprise.

That the movement is no forced growth, due to the growing dependence of the college and university upon private patronage, is best shown by an examination of the influences that have made it possible, or rather inevitable. On the one hand there is the steady expansion of the scope of university study. One by one the more important fields of human activity have been annexed to the domain of scientific investigation; and with the expansion of university instruction has come the recognition of the expediency of permitting the student to choose his studies according to the requirements of the career which he has chosen for himself. Naturally, so interesting and important a field as the more general phases of commercial development could not have remained long untouched. Indeed, many of our leading universities have long offered courses

of instruction that have an immediate relation to practical business, and it is for this reason that still more practical courses are so easily grafted upon the curricula of existing institutions.

On the other hand, the last quarter of a century has witnessed a rapid development of the technical school. In this America has been somewhat backward as compared with European nations. The Yankee does not take kindly to a long course of careful preparation, preferring rather to trust to native wit and resourcefulness. Especially has this been true in mercantile life. In a society which is undergoing rapid economic changes, the element of chance plays so important a part in commercial affairs that it obscures advantages or disadvantages of general equipment. Of late years, however, this element of uncertainty has been losing its relative importance, and the advantages of thorough training are making themselves felt. This is clearly demonstrated in the keen competition for world-trade in which America has begun to take so prominent a part.

Were the technical training of the business man merely proven to be an advantage to himself, just as is technical training to the artisan, the question might fairly be raised why public and semi-public institutions should undertake to make provision for it. As a matter of fact the business man of to-day occupies a position of far greater importance to society at large than did the business man of half a century ago. In the first place, international competition has assumed a significance hitherto unknown. The time is ripe for the industrial awakening of vast regions that have up to the present played a very subordinate part in the economic life of the world. Great profits are to be made by the nations that are first in the development of the Orient: and the wealth that is thus secured is a beneficent influence for the entire nation which receives it. It is accordingly of vital importance to the nation as a whole that

those men who must act for it, as well as for themselves, lack nothing in the way of mental equipment that it is possible to provide.

Yet more important, however, are the responsibilities of the man who has charge of the great industrial operations within our own boundaries. Ignorance and short-sightedness on the part of the manufacturer formerly worked injury to a limited number of employees, and unless luck came to his rescue, eventually ruined him. The same defects in the manager of one of the huge corporations of today may derange the entire industrial system. For good or for evil, business responsibility is becoming more and more centralized, and it is therefore more important than ever that those upon whom such responsibilities may fall should be thoroughly prepared to assume them.

Another consideration which is scarcely less important is the increasing importance of the business man in the administration of government. It is one of the most noticeable phenomena of the day that the business functions of government are daily on the increase. If such functions are to be performed successfully, business methods are absolutely necessary, and these can be best acquired in business life. But positions of public trust need something more than mere business efficiency; a broad view of social needs and a deep insight into remote consequences are equally essential. The college of the old type was, perhaps, successful in the development of these qualities. But the sort of education which the old-fashioned college gave has seldom been considered a positive advantage in business life: indeed, it has often been claimed that such education is a handicap to success. Naturally it did not attract the young men who were ambitious of business suc-But there seems to be no reason why such a course of study as the schools of commerce plan to give should not develop those higher faculties while at the same time preparing the student for practical life.

Twenty years ago the man of affairs would have had a right to question the fitness of an institution of higher culture to impart the instruction needed in business life. The colleges have changed, however, and business has changed as well. Not practice in a narrow routine of duties, but a general quickening of the intelligence, a development of the power to discriminate the essential from the accidental, the permanent from the transitory, would seem to be the training that will in the long run insure success. And although we may regret it, we cannot but perceive that the classic repose is disappearing from the college. Its interests are becoming more and more intimately bound up with those of the world about it, so that the old antithesis between the practical and the academic is passing away.

It is naturally not to be expected that a perfect solution of the problem of commercial education will be arrived at without a long series of experiments. The question will arise again and again how far the purely technical shall enter into the scheme of training, and how far the theoretical and cultural elements are to be emphasized. organization of the courses of study in the institutions which already have departments of commerce shows a wide divergence in this respect. At one extreme is the course offered by New York University, which is exclusively technical, and which makes no pretense of dealing with the theoretical aspects of commercial study, excepting so far as is necessary for the effective presentation of a limited range of practical problems. The curriculum of the University of California, which at first belonged to the more liberal of these schemes of education, is at present undergoing revision with a view to becoming more practical. The courses of commerce offered by the other institutions enumerated above are practically parallel in scope and in method with the courses in liberal arts which are offered by the same institutions.

It will be interesting to note the growth in numbers of

these schools, to observe the class of students which they attract, and to follow these students in their subsequent careers. At present the only one which has existed long enough to throw any light on such questions is the Wharton School of Finance and Economy. In round numbers, one hundred students are pursuing the four years' undergraduate course, while the graduate department has an enrolment of fifty. These young men are the sons of business men, and have found little difficulty in getting good positions after graduation, both of which facts argue well for the practical success of the school, and help to dispel any doubt as to the future of those schools which are organized on the broader basis.

ALVIN S. JOHNSON

HENRY RUTGERS BEEKMAN

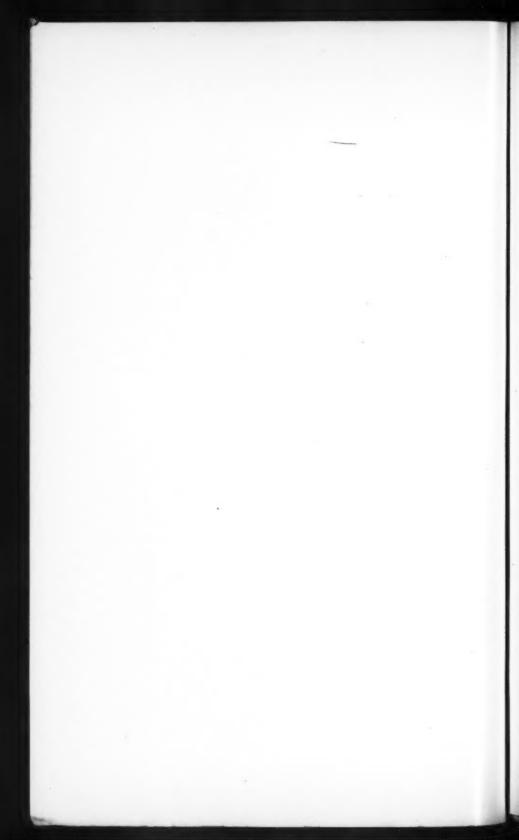
IN the great hall of the ducal palace in Venice, where were cast the votes for the magistrates of the republic, is a picture of the last judgment. On a tablet in the very midst of it, under the figure of the Divine Judge, are these words in Latin:

Those are to be accounted wise who, by their own, avert their country's perils, for they render to the republic the honor which is its due and would rather perish for, than with, many. For it is desperately wicked that we should treasure for ourselves the life which nature bestowed for our country's service; to surrender it at nature's demand, but refuse it when our country asks it. Wise too must they be accounted who shun no danger in their country's service. This is the price we are bound to pay for the dignity we enjoy in the republic, this the foundation of our liberty, this the wellspring of justice. The mind, the soul, the wisdom of the state lie in its laws. As a natural body without, the windom of the state lie in its laws. As a natural body without laws is powerless. Officers are ministers of the law, judges interpreters of the law, and all of us servants of the law. So only can we be free.

This test of worth did the great republic of the east affix on the eternal judgment-seat of God in token that by it she



HENRY R. BEEKMAN, A.B., LL.B., '65 LATE JUSTICE OF THE SUPREME COURT



wished her citizens to be judged at the last. It contains no word of success, wealth, achievement, rank or position. One thing only it requires, devotion even to death to her laws—the foundation of her dignity, the source of her justice and liberty. To us citizens of the great republic in the west, and indeed to citizens of any republic in the wide world, must the same test be applied, for it embodies the great principle underlying every form of popular government. When, therefore, we record our judgment on the finished life of one of ourselves, let us ponder those ancient words and measure its worth by the measure they establish.

There has just passed from among us one who was full of life, strength and interest in every region of human activity into which he entered; who worked long, and died, in the public service and bore a large share in our municipal affairs. Such a life demands some judgment at our hands. It was too powerful a force to disappear at once without comment or remark. What then shall be the judgment of our Alma Mater upon this her departed son? His life and his work are fresh in our minds. Upon them let us record our judgment.

Henry Rutgers Beekman was born in the city of New York on the eighth day of December, 1845. No need to say that he sprang from one of the most prominent of the old Dutch families, and inherited the advantages and duties which, even in this democratic country, accompany such an origin. His mother was Catharine Alexander Neilson, the daughter of William Neilson. She was of Scotch descent. Judge Beekman had thus united in himself the blood of two strong races, and in his character were to be distinguished the prevailing traits of each—the staid imperturbability of the Dutch, the strong will and pertinacity of the Scotch. Nature bestowed upon him a vigorous body and a mind of unusual power. Thus he was fitted for a career of success and achievement—whether

good or evil was left to himself to choose. He was educated in this city, entered Columbia College in the autumn of 1861, and graduated in June, 1865, second in his class. Immediately after graduation, Mr. Beekman entered the Columbia College Law School, from which he received the degree of Bachelor of Laws in 1867. He at once entered upon the practice of the law.

In 1870 Mr. Beekman married Miss Isabella Lawrence. the daughter of Mr. Richard Lawrence, of New Yorka union followed by singular domestic happiness. Mrs. Beekman belong the honor and consolation of having fulfilled the duties of a helpmate to her husband according to the fashion of other days and of having earned and enjoyed his unswerving love, growing with the years and greatest when the moment of parting came.

Mr. Beekman's record at college showed him to be of a studious turn of mind. At the Law School he found himself in an atmosphere most congenial to his tastes, and the law at once became his mistress, enchaining his interest and receiving his undivided devotion. For the comprehension of its principles, instances and development, his mind was peculiarly well fitted. In its application to individual cases, as an adviser, he was careful, accurate and wise; as a judge, painstaking, unbiased, learned, patient and just. Yet his love for the science of the law did not blind him to the defects which his learning brought before his eyes. The great fabric—the foundation of our liberty -one of whose custodians he was by the will of the people, showed, as he well knew, its antiquity and the diversity of its origin. For the most part it was solid, venerable, the work of master builders, erected with patient, careful toil, piling stone upon stone; but in many places it showed the work of hasty, slovenly and careless, or even corrupt and treacherous, workmen. Stone fitted ill with stone; the hand of time would surely bring it to ruin unless it should be repaired with care and skill. This

was a task of mighty proportions, demanding the highest learning and the most assiduous care. To it Judge Beekman devoted much of his energy; pointing out dangers, defects and inconsistencies, drafting amendatory acts, consulting with all interested, or having power to aid, in the work, but always with a practical end in view—the remedying of some specific fault.

Public office soon came to him, and he took it and rejoiced in it as a means of accomplishing good, and of acquiring knowledge and experience in the actual working of our political system. First he became a member of the department of parks by appointment of Mayor Grace in April, 1885. In a short time he became president of the department, which office he held until January, 1887. His duties here were purely executive. He took advice on all legal subjects from the corporation counsel. He was a minister of the law, and in every act he did and every document he signed, he so acted, he so wrote. The law, as the embodiment of the people and their dignity was his mistress; for their good, and it alone, did he labor, in simpleness of heart and purpose. Hard was the work, disagreeable in many respects, in its details petty, but it was done honorably, carefully, justly.

At the municipal election in 1886, Mr. Abram S. Hewitt was elected mayor and Mr. Beekman president of the board of aldermen—two men of whom Columbia may well be proud. Mr. Hewitt at the beginning of his term was ill and for a while Mr. Beekman was acting mayor. Of this period Mr. Hewitt wrote:

When I was chosen mayor, he was elected to be president of the board of aldermen, a position which imposed upon him the duties of acting mayor in case of the absence or disability of the chief executive. On the very first day of my term I was stricken down with a very severe and painful illness, so that, as a matter of fact, Judge Beekman was called upon to perform the duties of mayor for the first two months of my term. My daily conference with him gave me a new insight into his character. His earnestness of purpose, his sobriety of judgment and his energy of action were alike conspicuous. The condition of New York, at the time

when we took office, was not one of which its citizens could be proud. The ordinances were not enforced in a manner which was satisfactory either to the public or to the mayor, who was charged under the charter with the duty of supervision over the several departments. In particular, the administration of the police department was very lax, and evil resorts were in evidence in many parts of the city, and in some of them life and property were not safe. The board of health was in a state of paralysis, and the sanitary condition of the city was endangered by the approach of yellow fever, which required new provisions for quarantine against the invasion of disease. The steps necessary to be taken at once were recommended by Judge Beekman and promptly approved by me. Finding it impossible to secure prompt action on the part of the police for the suppression of what were known as "dives," Judge Beekman devised a new remedy by injunction which was found to be effective and was sustained by the courts. In less than two months, so far as outward appearances were concerned, New York became a decent city. The excise laws, which had been entirely disregarded, were enforced and the sabbath day became one of rest and quiet instead of disorder and debauch.

The study of the situation led us both to devise plans by which the general situation could be permanently improved. The board of health was reorganized and a commission, under its direction, investigated the overcrowded conditions of the city, and made recommendations for improvement which were promptly adopted. The Small Park Act was drafted by Judge Beekman and was promptly passed by the legislature. Under its direction the Mulberry Bend was razed to the ground, and a park created, which has relieved that portion of the city of some of its worst features. It was intended that one such park should annually be created, and during our term of office provision was made by which three of these small parks have been opened to the public. If our successors had pursued the same system, the city to-day would have at least ten of these breathing places for the children of the poor, and much of the complaint, which is now justly made as to the condition of the East Side or the city, would have been avoided.

We were aware, however, that much more would be required than the mere demolition of the worst portions of the tenement districts. It was evident that means must be provided to distribute the population over a wider area. For this purpose rapid transit to the suburban regions was absolutely necessary. Many schemes had been propounded for this purpose, but none of them were likely to be reduced to practice. We concluded that rapid transit could only be secured by the direct action of the city government. Hence what is now known as the rapid transit legislation was devised, by which the city would construct the work on its own account by the use of its credit, with a sinking fund attached, which would liquidate the debt within a reasonable period, so that the city would come into the possession of the property without any lien upon its revenues, and thus be able in the course of time to reduce the fare to a very small sum, not exceeding three cents. The preparation of the

legislation was an exceedingly slow and difficult operation. This labor was performed by Judge Beekman, who in the meantime had been appointed to the position of corporation counsel.

Upon Mr. Hewitt's recovery, Mr. Beekman took up the duties of his office of president of the board of aldermen, the most important of which were to curb the somewhat unruly proclivities of the city fathers, and, as a member of the board of apportionment, to control the expenditures of the city's money. Experience was thus gained, and knowledge of the system and its defects, and what he once learned he never forgot. In 1888 Mr. Hewitt, who had come to value Mr. Beekman as a tried and faithful public servant, appointed him to the office of corporation counsel, with the universal approbation of those who were laboring for the city's interest. This place afforded him full opportunity for the exercise of his ability as an expounder of the law relating to city affairs. He was at once the minister of the law and its interpreter. It was under his administration that the proceedings against the Croton aqueduct contractors were begun; but far more important, and deserving to rank high among the greatest legal achievements of our day, was the drafting of the rapid transit act, under which the present work is progressing.

None but lawyers, and few perhaps of them, except those whose attention has been specially called to the working of this act, can appreciate the skill and learning displayed by its draftsman. Most intricate questions of constitutional law were met with success, and a thoroughly workable scheme evolved, under which, in the face of the most formidable opposition, the undertaking has at last been brought to a legal conclusion, in entire harmony with the plan devised by Mr. Beekman and Mayor Hewitt and embodied in the act; to be followed in due course, no doubt, by the actual completion of the whole work, to the inestimable benefit of the whole city. This

alone would have entitled Judge Beekman to a high place among the constructive legal thinkers of the day.

In the midst of all this labor, and the incessant care and duties of his office, Judge Beekman preserved an unfailing kindness and gentle serenity of temper which endeared him to all his subordinates. No matter how great the burden on his own shoulders, he was always glad to lighten the burden of others, to give time and thought to their troubles and difficulties and to supply their shortcomings. In 1880 his term as corporation counsel came to an end and he resumed the practice of the law, continuing, however, his connection with rapid transit matters, as counsel to the commissioners. In this congenial work he continued until his election to the bench of the superior court in the autumn of 1804. Under the provisions of the constitution of 1895 he became a judge of the supreme court, but disqualified from a seat in the appellate division of that court. He was now an interpreter of the law. and as such in the highest rank of its servants. power, the dignity, the responsibility of this position to God and to man, were ever present in his mind, and it may truly be said of him that no judicial work left his hands which did not represent the very best thought and care of which he was capable. This, as every lawyer well knows, means labor of the most incessant and wearving character, but he believed and said that a proper fulfillment of the duties of his position demanded this, and that it must be given as cheerfully and as unfalteringly as a soldier gives his health, his comfort and his life to the state in service in the field. He gave it all his time, his care, his health and his life; and death came to him swiftly, painlessly, while he was at his post, in the full vigor of his mind, in the full tide of his usefulness—an ideal, a blessed death. For him nothing else could be wished. To his family and the state the only loss. "Wise too must they be accounted who shun no danger in their country's service. This is

the price we are bound to pay for the dignity which we enjoy in the republic—the foundation of our liberty, the wellspring of justice." Judged by this standard—and can our Alma Mater judge her sons by any other?—Henry Rutgers Beekman stands among the most highly honored of her sons. He could win by competitive examination no place in a hall of fame, nor would he have valued distinction of that kind. Duty was his guide—honor his reward.

And doubtless unto thee is given
A life that bears immortal fruit,
In such great offices as suit
The full grown energies of Heaven.

DAVID B. OGDEN

UNDERGRADUATE PUBLICATIONS AT COLUMBIA IV

VI ACTA COLUMBIANA, 1873-1885

IN the preceding article of this series it was seen how Cap and Gown, a monthly literary periodical published by the students of the School of Arts finally admitted to its board School of Mines representatives and changed its style to Acta Columbiana. The first number of the paper under this title appeared in November, 1873. This issue was also No. 12, Volume VI., Old Series, and for several years the older enumeration was observed at the same time with the new, for the purpose of maintaining the unbroken tradition of the magazine from its inception as Cap and Gown.

Acta Columbiana was given a somewhat different form from its predecessor. Its dimensions were smaller, being made approximately the same as those of the Spectator we all remember before it became the modern and business-like news-sheet that it now is. At first it had no cover, but this came later, with the familiar blue and white and

the motto that we associate rather with its rival and final absorber, the Spectator - a studentibus studentibusque. Sixteen to twenty-odd pages of reading matter was the rule and there were but few advertisements. Ten numbers formed a yearly volume. But this was theoretical rather than actual, inasmuch as the June and July issues were ordinarily combined. It is hardly necessary to discuss the reading-matter of the early Acta. It consisted of the usual run of college miscellanies, ranging from verse and prose essays and descriptive pieces, to a monthly record of college events which can hardly be called news, but which represented the modern news-note in embryo. The editorials, as always in Columbia undergraduate publications, dealt ably and independently with topics of academic interest. The threatening cloud of coeducation, which never ceased to worry the student until the Barnard College scheme solved the problem very satisfactorily, began at this time to loom larger on the college horizon and naturally afforded a favorite theme for rather one-sided debate.

On the whole, Acta in its first two years was a great improvement over its predecessor, and was favorably received by the students and commented on by its contemporaries. It had come to stay because, in the increasing flux of college affairs, in the awakening interest in athletics that was drawing Columbia out of her seclusion and pitting her against Stevens, Rutgers, Yale, Harvard and Cornell, a student organ was needed. For its editors, however, its course had not been altogether a bed of roses. The change of name had been regretted from the first, and student support was not yet strong enough to make the paper independent of the editors' pockets. The business end had never been properly developed, and it was at a critical moment that Mr. John B. Pine came to the rescue in the autumn of 1875. At the time that he became managing editor, Mr. F. S. Bangs became secretary, and these

two men, since so prominent in graduate affairs, infused new life into the paper. Acta was now given a blue cover, a new typographical dress, and a great many new pages of advertisements. A literary prize of \$25.00 was offered for the "best article on any subject of general interest except religion and politics." Contemporary literature was passed in judgment, in long essay-reviews on "Daniel Deronda," "Queen Mab" and Trevelyan's "Life and Letters of Lord Macaulay." In another way, much prestige was given Acta by the first "Columbia Song Book," prepared by Mr. Pine, and brought out under the auspices

of the paper.

It is interesting to notice that Acta was the first of Columbia publications to enjoy the privilege of a private office. A portion of the basement in the old "Maison de Punk" was walled off for the purpose of providing a sanctum for the editors. This proceeding was received with marked disfavor by the students at large, who resented any curtailing of their own territories, and also, perhaps, the idea of literary and social exclusion which such withdrawal on the part of the editorial board indicated. The current Columbian referred to the office as being "received with some disfavor." There was considerable rioting in the endeavor to wreck the unpopular office and many suspensions which occurred at that time could be traced more or less directly to these subterrine scrimmages. When the mob found that they could in no wise interfere effectually with the course of events and dispossess the editors of their sanctum, they discontinued their efforts. No doubt it became thenceforth the source of more worthy incentive for those who had at first wished to carry the enemy's works by assault from without, and who were now determined to obliterate the invidious distinction by gaining the inside through hard and legitimate labor with the pen.

The rioting of these days was in a way characteristic of

daily life at Columbia, which was marked by a tendency toward disorderliness and ruffianism that was deeply regretted by the better element in the college. There is frequent reference to this tendency in the editorial columns of Acta, as an evil, and many attempts were made to place the responsibility and to find a cure. The trouble in the class-room was placed frankly at the door of the faculty and with some justice, it seems, since that dignified body maintained a scholarly and unsympathetic seclusion, without displaying any disposition to cultivate that bond of friendliness and common interest between student and instructor, which is the dominant note in every college worthy of the name and which is so pleasantly characteristic of Columbia to-day.

When Mr. Pine left Acta Columbiana in the autumn of 1876, he was succeeded by Mr. Pryor, who afterwards became his brother-in-law and is at present the secretary of the influential City Club of New York. At the same time, Mr. Frederick W. Holls, lately secretary of the United States Commission to the Peace Conference at the Hague, became business editor. The administration was at the start a period of prosperity for Acta. Changes for the better were made in typography, cover, etc. It was at this time that the motto, a studentibus studentibusque, was adopted. A School of Law department was also added to round out the list of University interests.

Before the college year was out, however, Columbia saw exciting happenings and Acta came near anticipating its final demise by eight years. The events to which we refer were the fraternity and class dissensions which arose over the Goodwood Cup, and which gave stormy birth to the Columbia Spectator. It is always a rather dangerous if piquant task to revive old or more especially middle-aged scandals. But the duty of the impartial and truthful historian demands some account here of how Spectator, by far the most vital and longest-lived of all Columbia's reg-

ular publications, came to be. The trouble all arose over the Goodwood Cup, which was a wooden goblet named for the famous English Goodwood turf fixture, and passed on each year, by the senior who held it, to the man in the class below who had been indicated by the suffrage of his fellows to be the most popular. The importance of this decision as to popularity and the traditional honor of the award gave rise naturally to jealousy, rivalry and factional splits within classes. In 1878 Mr. James W. Pryor, editor of Acta, as we have seen, was nominated by a majority of his class for the Goodwood honor. The choice was unpopular with a minority, who carried the bitterness of their defeat into all the affairs of college life. Divisions arose within the editorial board of Acta, where Mr. Pryor found pitted against him, as chief adversary, Mr. Holls. Mr. Holls retired from Acta, organized a new board and with Mr. H. G. Paine, later of Harper's Weekly, as chief assistant, set out to start a new and rival sheet-Spectator. The object of Spectator was admittedly to put Acta out of business, and the chief element in the scheme to effect this was the making of the new paper a fortnightly. Outside of this, and the increased facilities which this more frequent appearance afforded for giving the student a record of college events before they were quite dead and forgotten, there was at the outset little to choose between the two. Spectator was a reduplication of Acta in every essential detail, and the intention to supersede Acta was obvious.

Fortunately Columbia had now progressed to a point where she could as readily support a brace of papers as a single one. The rivalry on unequal terms which the editors of *Spectator* had forced upon *Acta* with the purpose of driving the latter from the field, had in reality only the wholesome effect which rivalry should have, of raising Columbia's literary efforts to a higher standard than it had ever reached before. *Acta* at first, however, was hard

put to it to maintain its place. Radical reforms were obviously necessary if it was to compete successfully with its brisk contemporary. With Spectator making a strong effort to supply the student demand for news, etc., it is rather remarkable that to offset this, to preëmpt another field by which means direct competition could have been avoided, the editors should not have turned their publication into a monthly magazine and so have forestalled the Columbia Literary Monthly by fifteen years. Many other colleges had their literary magazines, and it seems as if this might have appeared an obvious step to take. Instead of this, the editors at first clung to traditional lines, and continued to be "a chronicler of college doings," as the first editorial in the college year of 1878-9 remarked in the course of elaborating its platform. The literary idea was rather shied at, the editorial proceeding to explain as follows: "If with this news budget, it can throw in a bit of sparkling verse or sprightly incident, so much the better. But if 'prize essays' and half-digested thought are to be belched at the public, why start a 'Lit.' at once." The only thing that Acta actually did to meet the rivalry of Spectator was to become henceforth a tri-weekly and to fall back strongly upon tradition by numbering its volumes from the beginning of Cap and Gown.

It is not difficult to predict what would have become of Acta with these half-measures and this lack of appreciation of what was required of it as a warrant for existence in the college community, if in February, 1879, H. A. Kingsbury had not turned over the editorial dignity to Harry Thurston Peck. With characteristic energy and originality Mr. Peck turned the paper into new channels and infused it with a new vitality and interest. Acta did not now adopt a conscious literary ideal any more than it had previously, but the men in charge of it had the power to work their record of college events up into editorial and skit that told alike by clearness of exposition and argu-

ment, and, by dint of enthusiasm and broad humor, gave the contents a literary, or at least a journalistic tone of a very high and unusual quality. Incidental to the change of spirit were outward alterations, such as the changing of the cover and the bringing about of fortnightly issues, so that at last on this point *Acta* could compete successfully with *Spectator*.

The story of Acta for the next four years under the management of Harry Thurston Peck, Nicholas Murray Butler and John Kendrick Bangs could easily be elaborated into a separate article in this series. Not only was it one of the best papers ever published at Columbia, but there has seldom been at any American College, we are confident, a publication that has had at once more intrinsic interest, even for the casual reader of back files to-day, and at the same time a flavor so thoroughly characteristic of the little college world which it represented. It was at once admired and hated by contemporary college periodicals, and terrific were the wars waged at one time or another against Rutgers or Yale and their journalistic representatives. It is indeed chronicled that at one time the name of the Acta was removed by the offended Yalensians from the exchange lists of their Courant and Literary Magazine. Outside of college circles Acta received considerable notice, and its really excellent verse, the work for the most part of Mr. Frank Dempster Sherman, Mr. Bangs, Mr. Peck and Mr. Partridge, was quoted widely. The New York Sun, since known as no great friend to Columbia, was in those days particularly fond of exploiting the merits of Acta, and Mr. Dana even went so far as to include one piece of verse that had appeared in its columns, in his famous "Household Book of Poetry." This was "Heliotrope," by H. T. Peck.

The tone of the paper is worth remarking upon. It was very gay, light-hearted and audacious. It had the real undergraduate flavor of braggadocio, legitimatized by a very clever use of the instruments of satire and burlesque. It attempted and attempted successfully those feats of pointed touch-and-go personalities which had been tried so disastrously a few years back in an offensive little sheet. Facta Columbiana, the name of which was, of course, a distortion of Acta's own title, and which in its third number crowned a career of insipid inanity with an outburst of coarse vulgarity that would have brought the perpetrators into the deepest academic opprobrium if their names had ever been revealed. Acta seems to have steered a uniformly straight course through the difficult ways of enterprising college journalism, guided by the intelligence and good taste of its editors, and its fun, though frequently exciting, was of a sufficiently decent and harmless nature. It is hardly necessary to say that these qualities made Acta warmly appreciated by the students, who used to form in line before the office window to receive their copies of the paper when it made its fortnightly appearance.

Acta reached the highest stage of that period of its existence which we have here described under John Kendrick Bangs, whose reputation as a humorist was first and very worthily acquired in this capacity, and whose presence in the literary columns is easily discovered not only through the peculiar quality of his humor but through such pennames as "Carlyle Smith" and "Shakspere Jones," which have become familiar to a wider range of readers since. There is one drawback in that otherwise advantageous arrangement by which a college paper acquires readily and completely the individuality and characteristics of its leading spirit. With Mr. Bangs as editor, Acta was Mr. Bangs: and when he left college, it was a debatable question whether there really was or could be any Acta left. As a matter of fact Acta declined very rapidly after the influence of its dashing, humoristic editor had been withdrawn. For a little time the new editors, favored by the continued contributions of such "eminent pens" as Mr. Sherman and Mr. Partridge managed to keep the ship afloat. But with the opening of the college year 1883-4 the decline set in sharply and before the paper was absorbed by *Spectator* in 1885, it had lost all claim to the support and interest of the undergraduates. *Spectator*, as we have said, took the motto, and so in a certain way, the news- and picture-paper assumed the responsibility of representing as well the old literary traditions, which had however, by this time, become temporarily almost extinct. How in time *Spectator* came to be more really representative of a new literary movement among the students of Columbia—the movement which produced Douglas and Carroll and other graceful writers of a light but rather distinctive Columbia verse—will be shown in another chapter.

W. A. BRADLEY

THE DEPARTMENT OF PHILOSOPHY AT COLUMBIA

Policy of the Department

THE history of the growth and expansion of the Department of Philosophy and Education since 1890 is thoroughly typical of the growth and expansion of the University as a whole during that time.

The policy of this department has had in view a definite purpose, and each step which has been taken has brought its accomplishment nearer. That purpose is (1) to make the study of philosophy of vital interest to students, both graduates and undergraduates, by relating it to the intellectual and moral problems of to-day, and by substituting historical, critical and interpretative teaching for the dogmatic instruction which was once so common; (2) to relate the study of philosophy to the results of modern scientific research, particularly as arrived at in the fields of psy-

chology, biology and physics; and (3) to create an academic discipline by the application of philosophy and its methods to the subject of education, which discipline shall, when established, take academic rank with the older studies that have preceded it. In this part of the field the department has had to build from the foundation; for while the material, historical and other, was abundant, early attempts to develop a philosophical treatment of education in universities, particularly in Germany, had, almost without exception, ended in an empty formalism.

The duty of the department toward undergraduate students is held to be of great importance, and it is desired that every student who receives the degree of Bachelor of Arts may have adequate opportunity for training in systematic reflection and for approaching the subjects ancillary to philosophy proper in a serious and definite fashion. For graduate students it is the duty of the department to point the way toward additions to the sum total of philosophical scholarship and toward new syntheses and interpretations. These are the teaching and the investigating functions of the department; its publishing function is carried on through the Columbia University Contributions to Philosophy, Psychology and Education, now in the eighth volume.

Plan of Instruction

The plan of instruction in the department is as follows: Every candidate for the degree of Bachelor of Arts is required to attend a course of instruction in the elements of psychology for three hours a week during a half-year. This is the fundamental course upon which all other courses, in both the department of philosophy and education and the department of psychology and anthropology, depend. It is usually taken in the junior year, but may be taken by specially qualified sophomores. The method of instruction in this course is by question and answer and

by discussion. Lectures are not given, it being held that the lecture-system is an unsuitable method for instruction of this grade and character. The sections taught are small, rarely numbering over thirty, and greatly increased efficiency in teaching is the natural result.

Having taken this preliminary course, undergraduates may elect courses in ethics (three hours a week for a half-year), in logic and scientific method (three hours a week for a half-year), in historical and critical introduction to philosophy (three hours a week for a year), in æsthetics (two hours a week for a year), and in principles of education (three hours a week for a year). They have open to them also the wide range of courses in education offered by the Teachers College faculty, and the numerous courses in psychology and anthropology. Occasionally, a specially qualified senior is admitted to a course inintended primarily for graduate students.

The courses primarily for graduates are twelve in number, nine of which are given in 1900-1. Of the graduate courses, occupying twenty-four hours a week in lectures or other exercises, seven deal with philosophy proper, two with ethics, one with epistemology, one with metaphysics, and one with æsthetics. By the use of assistants and required consultation hours for students in the more largely attended courses, and by the free use of discussion and written reports in the smaller courses, the inadequacy of the lecture system is largely overcome. The offices of the department are open all day and every day in order that some member of the staff of instruction may be at hand to meet students for the purposes of explanation, discussion, or supplementary reading.

Fellowships and Degrees

Seventeen fellows have been appointed in this department since the establishment of university fellowships in 1890. From 1890 to 1900 the degree of Doctor of Phi-

losophy was conferred upon twenty candidates whose major subject lay in this department, and upon thirty-four candidates whose minor subject lay there. During the same time fifty-five persons received the degree of Master of Arts, with their major subjects in this department, and seventy persons received that degree with a minor subject chosen in philosophy. From 1890 to 1900, four hundred and seventeen graduate students were registered primarily for work in this department. Of the twenty doctors of philosophy in philosophy or education, thirteen are engaged in teaching in schools, colleges or universities, four are clergymen in active service, two hold administrative positions in educational work, and one is a practising physician.

How new all this development is may be seen clearly if it is recalled that the first graduate student of philosophy at Columbia University was reported in 1882-3, and that the first seminar in philosophy was organized in 1885-6.

Historical

In tracing the development of the instruction in philosophy, psychology and education, and in comparing the provision for such instruction at Columbia University with that made at other American universities where these fields of instruction and research are particularly well organized, it is not possible to keep separate the department of philosophy and education and the department of psychology and anthropology. Not only has the latter department, as now organized at Columbia, grown out of the former, but at other institutions the distinction between the two which prevails here does not exist, at least not in the same These facts have determined the content of the statistical tables which follow, and should be borne in mind in interpreting them. These two departments at Columbia, taken together, constitute the division of philosophy and psychology.

Prior to the reorganization of 1787, the only representation of philosophy in Columbia College appears to have been through Myles Cooper, appointed professor of moral philosophy in 1762. Professor Cooper held this office during 1762-63, in which latter year he was chosen president of the college. It is not unlikely that he continued, as president, to give instruction in philosophy until his retirement from office in 1775.

After the reorganization in 1767, the professorial succession, so far as the head of the department is concerned, was as follows:

1787	Professor Gross
	Professor McKnight1801
1801	Professor Bowden1817
	Professor McVickar 1857
1857	Professor NAIRNE1881
1881	Professor Alexander1889
1889	Professor Butler

The title of the chair was professor of moral philosophy until 1857. In 1787 logic was added to the subjects for which it was responsible, and in 1799 rhetoric and belles lettres were also added. There was a separate chair of rhetoric and logic from 1784 to 1787, occupied by Benjamin Moore, who became president of the college in 1801.

After 1857 the title of the chair was professor of moral and intellectual philosophy and literature, and from 1865 and 1876 it also included history and political economy. In 1881 the chair was divided and the professorship of philosophy, ethics and psychology established. The title was again changed to the existing title of professor of philosophy and education in 1895.

The growth of the division since 1887 has been rapid. In that year a tutorship was established, which became an instructorship in 1891 and a professorship in 1895. A lectureship in psychology, first provided for in 1890, became a professorship in 1891. An instructorship was added in

1893, an assistantship in 1884 and another in 1896. A lectureship in anthropology first appears in 1896 and becomes a professorship in 1899. A new lectureship in psychology was also established in 1896. An assistantship in psychology dates from 1897, and the (collegiate) professorship of philosophy from 1900.

Growth of the Teaching Force

The following table shows the history of each of the positions now existing in this department, and the successive incumbents of each since its foundation:

1. Professorship of moral philosophy (established in 1767).

Title changed to professorship of moral and intellectual philosophy and literature.

1857......Professor NAIRNE1881

Title changed to professorship of philosophy, ethics and psychology.

Title changed to professorship of philosophy and education, 1895.

- 2. Tutorship in philosophy (established in 1887).
 - 1887......Nicholas Murray Butler.....1889

1889......JAMES HERVEY HYSLOP1891

Promoted to instructorship, 1891.

1891......1895

Promoted to professorship of logic and ethics, 1895.

1895..... JAMES HERVEY HYSLOP.....

- 3. Lectureship in experimental psychology (established in 1890).
 - 1890.......JAMES MCKEEN CATTELL......1891
 Promoted to professorship, 1891.

	McKeen Cattell	
Title changed to pro	fessorship of psycholo	gy, 1896.
4. Instructorship lished in 1893).	in physiological ps	sychology (estab-
1893Livine	GSTON FARRAND	**********
Title changed to inst	tructorship in psycholo	оду, 1899.
5. Assistantship in	philosophy (establi	shed in 1894).
1894Norm	AN WILDE LEROY JONES	1898
6. Assistantship in	philosophy (establis	shed in 1896).
	Angus MacVannel	
	ER TAYLOR MARVIN	
	GE BALTHASAR GERM	
1900HARL	AN UPDEGRAFF	
7. Lectureship in	anthropology (establ	lished in 1896).
1896FRAN	z Boas	1899
Promoted to profess	orship, 1899.	
1899FRAN	z Boas	• • • • • • • • • • • • • • • • • • • •
8. Lectureship in	psychology (establis	shed in 1896).
	LES AUGUSTUS STRO	
	n psychology (establ	
	HERD IVORY FRANZ. K WISSLER	
	IAM HARPER DAVIS.	
	(collegiate) of philo	
in 1900).	(conegrate) or pinio	sopny (established
	ERT GARDINER LORI	
	iction numbered, at	
of three successive d		the close of each
1880-81.	1890-91.	1900-01.
Professors1		Professors 5
	Instructorsı	Instructors I
	Lecturers1-3	Lecturers 1
		Assistants 3-10

Development of Instruction

The records of the University show that twenty years ago the only instruction offered in the whole range of subjects now represented by the division of philosophy and psychology, with its thirty courses occupying sixty-six hours a week—the laboratory and consultation rooms being open from seven to eight hours daily in addition—was two courses occupying four hours weekly; one a course in logic, one hour weekly, required of the junior class, and the other a lecture course in the history of philosophy and psychology, three hours weekly, open as an elective to seniors. In 1890–1, this had increased to eight courses occupying fifteen hours a week. The growth since 1890–1 is shown in the following table:

Year	Number of Courses	Number of Hours a Week		Enrollment in Courses
1890-1	8	15		136
1891-2	. II	17 (+ Lab.)	150
1892-3	II	17	" "	192
1893-4	14	17 (")	251
1894-5	16	231/2 ("	246
1895-6	18	27 (")	302
1896-7	19	29 ("	349
1897-8	22	35 ("	422
1898-9	25	421/2 (")	502
1899-1900	24	461/2	** }	547
1900-1	30	66	44)	551

Comparison of Work and Cost

1800-1000

	2090-1900								
Year	Salaries	Departmental Appropriations	Number Enrolled	Teaching Unit*	Per Capita Cost of Instruction				
1890-1	\$ 5,700	\$ 98.40	126	197	\$29.43				
1900-1	24,500	750.00	551	1.565	16.13				
Increase	330%	662%	337%	700%	Decrease 45.3%				

Comparison With Other Universities

For the year 1900-1, according to the latest information available, the table below indicates the scope and expense

^{*}The teaching unit in this table is found by adding together the number of hours a week which every student enrolled in any course is taught.

of the work included in the Columbia University division of philosophy and psychology at each of three other universities, where much attention has been paid to these subjects.

	Columbia	Harvard	Cornell	Chicago
Professors	5	6	5	2
Adjunct professors	0	2	I	4
Instructors	I	3	5	* 2
Tutors	0	0	0	0
Assistants	3	8	3	2
Lecturers	I	0	o	. A. O
Total staff of instruction	10	19	14	10
Courses offered, 1900-1	30	31	37 68	14 64
Hours per week	66	70	68	64
Total enrollment in courses	(+Lab.)	(+Lab.)	*******	278

NICHOL MURRAY BUTLER

EDITORIAL COMMENT

The nineteenth century is now so far behind us that editorial reflections upon the passing of it may perhaps seem a little belated. Nevertheless the QUARTERLY cannot afford, merely be-

cause it is a quarterly, to miss an opportunity The Old Century and the New that comes but once in a hundred years and withal to set at naught the precedent of all well-regulated journals. In 1801 Columbia, as such, had but recently been born; and certainly when we compare the College of that day with its successor of the present time, there is some room for congratulations. Then a single war-worn, dilapidated building, a beggarly income of about \$15,000 a year, a half-dozen instructors and a handful of students-albeit there were men of brains among both teachers and taught -: now a great university, with allied schools and colleges, with four hundred instructors and four thousand students, and an annual outlay of nearly a million dollars! Surely the contrast marks a wonderful advance, not alone in the institution but in the public intelligence and the public liberality which have made such a development possible. That this development has come largely within the last few years

renders it none the less remarkable, but all the more encouraging as offering the hope that the future growth which it promises may be no less sure and far more rapid in the coming century than in the past. Visualizing the next ten or fifteen years, one can readily picture the quadrangle of buildings surrounding the Library as an accomplished fact; the College installed in its own edifice; the Law School and the Schools of Political Science and Philosophy similarly provided for; a Chapel and a University Hall, worthily representing the religious and the social life of the University; and a group of dormitories surrounding the Green. So much of the horoscope is not difficult to read; nor should this forecast, looking perhaps a little further into the future, omit a library overflowing with a million volumes, and a small army

of students gathered about Morningside Heights.

In its educational scope the University must inevitably broaden and deepen. Already its influence has extended far beyond the city and state and has been felt in many colleges; and there is no reason why, in time, such colleges should not become its allies and a part of its educational system. No less plainly does modern research point the way to wider fields. The archæologist and the philologist are exhuming the old almost as rapidly as the scientist is revealing the new, and the University must be the mint to convert their discoveries into coin of the realm. Nor will the fine arts, and religion, in its ethical, philosophical and historical aspect, long permit themselves to be deprived of their just recognition. What more welcome or congenial neighbor to the University than a school of fine arts, offering to its students that training of the hand which the University can so well supplement with the training of the mind? Or than a school of theology, of whatever denomination, drawing its strength from the knowledge of man as well as from the inspiration of God? Liberal and progressive as the University has shown itself to be in the past, and resting as it does upon broad and sound foundations, Columbia may well anticipate for the coming century a development even richer and more inspiring than that which we now look back upon. And if the form of her future growth shall differ here and there from our present prevision, it will be because of her quickly responsive effort to adapt herself to the evergrowing, ever-changing needs of the city, the state and the nation.

In a recent address before the American Society of Naturalists Professor Osborn spoke as follows:

The University and State Scientific Work.

The University and operation between nation, state and university in research. A conspicuous example of the splendid results which may flow from such coöperation is found in the present administration of the United States Geological Survey. We see the government coöperating with the states and with the universities and public museums to produce a uniform investigation of the geology and palæontology of the entire area of the United States.

If the larger scientific interests of the country are one, and if the Utopian state is one in which there is a sympathetic nervous system connecting state and university work, it is obvious that our colleges and universities should consider more carefully than they have done the preparation of men especially for state work. Educators have perhaps had too exclusively in mind the medical school, the teaching profession, and too little the direct service of the state.

College and university men of science, and state and government men of science, naturally acquire certain individual characteristics; they have their strong points and their weak points, and it is of advantage to American science at large that these two classes of men in all departments of science—in physics, chemistry, geology, botany, zoölogy—should abrade their angles by coming into frequent contact, because contact not only removes the angles, but increases mutual respect and admiration, until the entire unity of purpose and action is consummated which completes the scientific structure of the nation.

At the present time, the assistant state geologist and assistant director of the state museum at Albany is a Columbia graduate, several of our alumni hold important positions in the United States Geological Survey, and a number are or have been connected with the surveys of various states; but considering the large number of our graduates in science and the distinction which they have gained in other fields, it is surprising that they have not been more prominent in the scientific research prosecuted by the national and state governments. There certainly should be, as Professor Osborn points out, a much closer relation between the state and the universities, and the latter should contribute more largely than they have done to aid the state by supplying men thoroughly equipped for state work. The scientific training now offered by Columbia is sufficiently broad to enable any student desiring to do so, and studying with that object in view, to obtain an excellent preparation for such

work in any one of several specialties; and the field is one which presents particularly attractive opportunities, not only because it is constantly extending and requiring more and bettertrained men, but because government appointments to scientific positions are all, or nearly all, based upon civil service examinations and are, therefore, within the reach of any man who can demonstrate his ability. The wide and varied training which the public service affords and the value and dignity of such service are set forth with the knowledge of experience by Dr. Pritchett, formerly the head of the Coast Survey and now the President of the Massachusetts Institute of Technology, in a recent address which is printed in the February number of the Educational Review; and our scientific departments would do well to bring his interesting and suggestive paper to the attention of their students and to appeal to their public spirit, as well as to their individual interest, to aid in carrying forward scientific investigations under state auspices.

Columbia's most noteworthy contribution to the pleasure and profit of the various philological conventions held at Philadelphia during the Christmas holidays was undoubtedly the address delivered by Professor Price as president of Professor Price's Philadelphia Address the Modern Language Association. entitled "The New Function of Modern Language Teaching." The speaker began by pointing out that the main fact in the recent shifting of studies in our educational system has been the growth in importance of the physical sciences and the modern languages. In a great measure, however,-he went on to saythe time given to the study of the modern languages, in obligatory courses, has been won by taking from the study of Greek literature and reducing it from an obligatory to an elective study. As the chief function of Greek literature since the Renaissance has been to develop the sense of literary form and to supply the models of literary art, there arises the danger that by the withdrawal of Greek literature from the general course of study in our schools, colleges and universities, our educated classes may lose the sense of literary form and become dulled in their appreciation of beauty in literature. That there is room for this fear seems to be proved by the decay of the sense of form in

American literature, as seen especially in lyrical and dramatic poetry, and in the higher forms of prose. To meet this danger the teachers of the modern languages must take upon themselves the supreme function of university culture, which used to be discharged by the teaching of Greek literature. This is the "new function" of modern language teaching—to impart a feeling for the nature and the charm of pure literary form.

Such a line of reflection certainly gives much to think ofboth to the votaries of the old humanities and to those who have to deal, in their teaching, with the modern literatures. The question has sometimes been raised in recent years whether, after all, the love of literature can be taught by any sort of academic routine. When it comes through teaching it seems to come incidentally, as a rather mysterious effluence of the teacher's personality. Criticism, analysis, exposition, even exclamations of quam pulchre, usually bear little fruit save in the formation of opinions. But an opinion, even if ever so sound and tasteful, is a different thing from love. Every one will recall Byron's lament over the school training which had taught him to "understand, not feel, the lyric flow" of Horace. Not every lover of literature can make others love it by talking about it; and those who can do the trick very often can not tell how they do it. May it not be that the psychologists should take a hand in the discussion? The columns of the QUARTERLY are open.

The appointment of a permanent dean of Barnard College is the most important recent event connected with the administrative work of the University. Since the resignation of Mrs.

The New Dean of Barnard College Putnam, Professor Robinson has acted most acceptably as dean of Barnard, but it has been generally felt that the direction of the internal affairs of the college, and especially of the studies of the young women, would be better entrusted to a woman than to any man. Accordingly, little real surprise was occasioned by the announcement of some weeks since that the Barnard trustees had appointed Miss Laura D. Gill to the deanship.

Miss Gill's record is a distinguished one from the point of view both of scholarship and of administrative work. In 1885, at the

age of twenty-five, she took her Master's degree at Smith College, with biology as her major subject. She had previously taught at the Burnham School, Northampton, Mass., and while devoting herself to mathematics, had also proved the catholicity of her mind by pursuing courses in philosophy and Greek. After special work at Smith College she studied at Leipzig and Geneva, and finally at the Sorbonne. Returning from Europe a thoroughlyequipped scholar, she proved her versatility by undertaking administrative work at the school in which she had formerly taught. Her success was conspicuous, and important positions elsewhere were offered her, none of which, however, proved sufficiently attractive to her. But the late war with Spain afforded an outlet to her energies, of which she at once availed herself. Under the auspices of the Red Cross she served both in Cuba and at Montauk, as nurse and hospital manager, and on the cessation of hostilities she returned to the island to represent the Cuban Orphan Society. Her subsequent success in the organization of kindergartens and primary schools has been noteworthy, and she is still in Havana closing up her work.

This brief sketch will show that the new head of Barnard is endowed with a remarkable administrative capacity, which has been developed both by training and by experience. Her interest in human beings has triumphed over her interest in books, but her years of teaching and study will keep her from subordinating the educational side of her work to the administrative. It is needless to add that the faculty of Barnard and the other faculties of the University are waiting to extend a cordial welcome to the new dean, and that the QUARTERLY, which represents them, takes pleasure in wishing Miss Gill all success in her new sphere of useful labor.

The aim of the QUARTERLY is to tell the truth about the University; and the difficulty of learning the whole truth, even when the inquirer is a presumably omniscient editor, suggests

The Decettfulness the still greater difficulties in the way of the averof Figures age alumnus or friend of the institution. Among the topics which are of interest to university men, and also to the community at large, is that of the growth and extent of Columbia's influence; and since the number of students in at-

tendance is at least one index to the influence exerted, the QUARTERLY is in the habit of publishing the most accurate statistics that can be gathered of the registration in the various departments of the University. In this way the editors have become aware that all such statistics, from whatever source, need careful analysis if any comparisons are to be made.

The ease with which the uninitiated may fall into serious error is illustrated in a recent number of Harper's Weekly, in which a comparison leaves Columbia at great disadvantage. In a list of institutions having the largest influence the writer puts Harvard, Michigan, Minnesota, Georgia, Chicago and California (in the order named); and among the smaller institutions, having less than three thousand students, he names the Northwestern University, Cornell, Pennsylvania, Yale, Columbia and Princeton. The fact is that any method of ranking these institutions according to number of students is open to criticism, because of great differences in standards of admission and work done and in the organization of departments. Thus, if Chicago includes all the students in her four terms, while Columbia omits her summer school; or if Michigan and Cornell include women students, while Columbia leaves them out; or if Harvard and Pennsylvania include students of education, while Columbia does notthen the comparison loses all value. In the case before us, the exclusion of the figures for Barnard College and Teachers College puts Columbia in the eleventh place, instead of in her rightful position in point of total attendance—the second.

The article referred to also puts in the first rank one institution which is credited with some fifty per cent. more students than all the colleges of its state had in 1897–98. The writer's error was very natural and was no doubt based on what he supposed to be accurate information. We call attention to it merely for the purpose of enforcing the need of using great care in the interpretation of such figures. Those who are interested in the subject can make many illuminative comparisons, with a minimum of error, by turning to the tables prepared for this number of the QUARTERLY by Dr. Germann, the Registrar of the University.

The observant reader will not fail to notice that this number of the QUARTERLY is largely devoted to medical educationpartly in its general aspect and partly as related to the work of this University. There is no branch of pro-Our Medical Number fessional study which touches the life of the many so inevitably and so closely as the training of our medical men. Here, if anywhere, the intelligent layman is concerned to know what is being done to keep pace with the march of knowledge. The technical details may be beyond his depth, but the spirit, the methods and the ideals of medical study are, or should be, of the greatest interest to him. And such wide-awake laymen we refer confidently to the articles published in this number of the QUARTERLY. Every one is aware in a general way that the last two or three decades have brought with them a momentous change in the training of the physician: the reminiscent article by Dr. Curtis shows clearly what the change amounts to and how it has come about. The subject of preparation for the study of medicine is occupying the thoughts of multitudes in school and college: Dr. Lee discusses the topic in all its phases, setting up an ideal that is certainly high, but certainly not too high. His thoughtful essay deserves to be read and pondered, not only by intending students of medicine but by fathers having sons to educate. In all professional training it is calamitous to begin specialization too early, but momentously important to start in the right way with one's general education.

THE UNIVERSITY

A volume on the University of the State of New York, recently issued by the U. S. Bureau of Education, as No. 28 of the "Contributions to American Educational History," contains a historical sketch of Columbia by Frank R. Hathaway, A.B., '88, A.M., '89, and Sidney Sherwood, Ph.D., Associate Professor of Political Economy in the Johns Hopkins University. The appended bibliography is valuable, but the account of the early years of the College is meagre and superficial, and the statistics are only brought down to the year 1895.

It is a pleasure to note the large contingent of Columbia men on the engineering staff of the Rapid Transit Commission, whose great work is now going on in this city. With the exception of the chief engineer and deputy chief engineer, the appointments were all made after competitive examination under the civil service rules. From a statistical compilation made under the authority of the commission it appears that the engineering staff numbers in all 62, of which number all but 5 are college men—using the word "college" in the broadest sense. Of the 57 college men 19, or exactly one-third, are Columbia graduates. Harvard is represented by 5, the Cooper Institute by 4, Cornell by 4, the Massachusetts Institute of Technology by 4, Yale by 3, Washington and Lee University by 2, and sixteen other institutions by 1 each.

By the death of Oswald Ottendorfer Columbia loses a friend whose liberality had been proved on more than one occasion. He was one of that famous little band of highly-educated, freedomloving and energetic Germans who were cast upon our shores by the revolutionary wave of 1848. Mr. Ottendorfer was born at Zwittau, in Moravia, in 1826. He received the best scholastic training in his boyhood, studied at the University of Vienna, and later settled in Prague as an advocate. When the "spring-time of the people" arrived, in 1848, he was heart and soul with the revolutionists. The collapse of their cause led him, in 1850, to sail for America, where, after various vicissitudes, his great energy found a field in the conduct and development of the New Yorker Staats-Zeitung. He prospered in business and acquired great influence as a representative American of German birth. After he had become wealthy he gave generously for charitable and educational purposes. Shortly before his death he had sent a check for \$1,000 toward an endowment fund for a course of public lectures in the German language at Columbia.

FINANCIAL CONDITION AND NEEDS OF THE UNIVERSITY.

The following statement issued by the Trustees, after their meeting of January 7, shows briefly what has been accomplished since the removal to the new site and appeals to the citizens of

New York for the aid necessary to meet the current obligations of the University without curtailing its educational work. The sum needed for the current year was estimated in the circular at about \$100,000. At this writing—February 15—nearly two-thirds of that amount has already been pledged. It is to be hoped that the friends of the University will not only do what they can to help this movement, but will also endeavor to secure for the University the new buildings which are greatly needed, such as a college hall, a chapel, and dormitories. We hope, too, that our alumni and friends will form the habit of remembering Columbia in their wills. It is not so much the size of the bequest that counts, as it is the fact of interest and recognition. The text of the statement is as follows:

Financial Statement.

The problem of Columbia University can now be defined, for the first time since, in 1892, it was determined to move to Morningside Heights.

Heights							17
Surgeons			-				43
Interest to June 30, 1900.						\$7,395,988 586,519	
						\$7,982,508	52

Of this large sum the University has succeeded in paying, mostly out of gifts and legacies, \$4,250,000. Of its outstanding debt the sum of \$750,000 is provided for. It still owes \$3,000,000 that is not provided for; upon which the annual interest payable is \$08,500.

Careful computations justify the undersigned in saying that eight years from now the University will be able, by the increase of income from its fees and endowments, to care for its floating debt without embarrassment to its educational work. The falling in of contingent interests already definitely established may hasten this result importantly. Experience also demonstrates that the endowments of the University are likely to be constantly increased by gift and legacy year by year.

The problem of the University, therefore, is to conduct its educational work for a period of eight years without curtailment by reason of the interest to be paid in the meanwhile on its outstanding debt, say, \$100,000 a year.

For the academic year ending June 30, 1897, the last year at the 49th Street site, the University had a deficiency on its current educational account, disregarding interest, of \$48,260. For the coming academic year,

1901–1902, the estimates for the Budget already made show that the ordinary income of the University next year will pay all of its current expenses except the interest on its outstanding debt.

If our interest payable can be taken care of for eight years, the problem of the University growing out of its removal to the new site will be solved.

From the purely business point of view, the operations of the University have been already justified. Its plant has been increased in value, after deducting the proceeds of its old buildings, by more than \$6,250,000, taking its new site at cost. If the new site be taken at its present market value, the increase in the value of the University's plant would be not less than \$3,000,000. The debt incurred in producing these results, still remaining unprovided for, is only \$3,000,000. In addition, University Hall is now being enlarged by gift; and Earl Hall is about to be erected, also by gift. In the same interval, the trust funds of the University have been increased by \$1,250,000; the library has grown from 120,000 volumes to over 300,000 volumes; the teaching force from 226 to 361; and the number of students from 1564 to 2560. These figures do not include either Barnard College or Teachers College.

Since removal, also, an educational deficiency of more than \$48,000 has been overcome, and the University, after this academic year, will be running within its income, after assuming the full care of its enlarged plant.

For a few years, and for a few years only, the University needs help to prevent its debt from being further swelled by borrowed interest. It is not possible to take any such sum as the University needs, annually, in the immediate future, out of its educational work, without destroying its efficiency. This ought not to be permitted: First, because the work is highly useful and is being economically and well done; second, because any curtailing of the University's educational offer would be reflected immediately in loss of earning power; and, third, because, for the credit of the city, the University must be kept where it now is, in the very front rank.

To meet this situation, appeal is made to all the friends of the higher education in New York. Friends of the University, including the President and Trustees, have already pledged \$38,000 for this purpose. For the rest, the University confidently turns to the citizens of New York who value the things for which Columbia University stands in this metropolitan city.

SETH Low, President.

RELIGIOUS INTERESTS

The chapel speakers for the second half-year are as follows:

February 11, President Low, February 27, Professor SLOANE, March 6, Professor BURDICK, March 20, Professor CLARK, April 3, Professor KEMP, April 17, Professor H. S. MUNROE, May 1, Professor THOMAS, May 15, Professor W. H. CARPENTER. An interesting feature of these addresses has been the noticeable viewpoint of religion and the spiritual life, directly associated with the department of the speaker, which shows the value of such remarks in our chapel. The young men can hear what others than trained theologians think of the place and value of religion, and especially the Christian religion, in thought and in the development of character. One could almost tell with his eyes shut, from what he hears, the particular department in which the speaker is a professor; so disposed is one to speak out of the abundance of his own personal experience.

The building of Earl Hall is already well under way and it is hoped that it may be ready for occupancy in the fall. In many ways this building will be a most desirable acquisition to the material and social equipment of the University. Care will be taken by the authorities to see that the one in charge of it and all its work shall be as broad as he is spiritually minded—a representative man and Christian worker, whose personality will in-

sure the success of the venture from its inception.

The classes for Bible study have been very well attended this academic year. As these afford the only opportunity in the University for the devotional study of the Scriptures, students would do well to take advantage of it. The teaching, while aiming to be reverent and spiritual, is thorough, and in its methods scientific and intellectual.

The lectures that have been given under the auspices of our Young Men's Christian Association have been very well attended, as has also the single address given by the Churchmen's Association.

G. R. V.

Young Men's Christian Association.—The annual election was held Jan. 23, and the following officers were chosen for the ensuing year: President, W. M. Nesbit, '02; Vice-president, W. L. Gookin, '02; Treasurer, G. H. Butler, '03; Recording Secretary, Emory Hill, '04.

The report of committees showed a decided advance in all departments of the work, especially in membership and in Bible study. The total membership is now 169, and there are 32 men enrolled in Bible study. During the last quarter two meetings of more than usual significance have been held. In December,

Dr. F. Howard Taylor, whose father, J. Hudson Taylor, was the founder of the China Inland Mission, spoke of the present crisis in China. In January, Mr. Halsey, of the New York *Times*, delivered an address on "Journalism in New York."

The most important work now on hand is the preparation of the annual "Students' Handbook." This year Columbia will publish a book entirely devoted to Columbia interests.

A. B.

EMPLOYMENT FOR STUDENTS

The Committee on Employment has now on file one hundred and fifty applications for work. The nature of the work desired is varied, most of the applicants beginning with a request for tutoring of some sort, and radiating out from that in all possible directions of effort that promise remuneration. Since the first of last July students have earned in the neighborhood of \$3,000 by work secured for them by this committee. Less than fifty men secured positions of any importance, although many more were given opportunities. The most desirable positions are those which bring the most pay with the least expenditure of time and effort. Coaching for the entrance examinations comes nearest to answering this description, but such work can be done successfully only by men of experience and ability. Several places in night and private schools have been secured. The pay for night-school teaching is from \$2 to \$3 per night. The pay for entrance coaching is from \$1 to \$2 an hour. A few students have been given places as companions to small boys. The pay for such work is less and the time required is much greater, but experience counts for much less. One man has solved the problem of self-support by organizing a class in stenography. A few others wait on boarding-house tables for their board. Two men divide between them the duties of cashier of the University book-store. Another is gymnasium secretary. few professors employ students as clerks or secretaries. latter field might be cultivated further to good purpose. student has the agency for several large text-book publishing houses.

The statistics given as to the amount earned are only tentative,

as many applicants have not yet reported to the committee and will not till near the end of the year. The amount stated is undoubtedly much smaller than the aggregate student earnings, but is larger than the committee has been able to report in any previous year. Summer work is naturally much sought after. Tutoring, working in summer hotels, and canvassing are the most available opportunities. A few self-reliant fellows earned their living and something more last summer as street-car conductors. The committee placed a few men with the New York Telephone Company last year, as night attendants at pay stations. Translating, proof-reading, collecting, addressing envelopes, and a few other odds and ends of employment, complete the category.

A. B.

THE LIBRARY

The changes recently made in the loan division of the readers' department of the library are keenly appreciated by all who have occasion to consult the catalogue or to borrow books. The catalogue-cases have been made much more available by being broken into units, rather than continued in a solid line as formerly, and by their transfer to the large and light corridor, from the restricted space and the artificial or very dim natural light of their former position. At the same time, the increase of space for those having business at the loan desk is very gratifying, and adds much to the comfort of all concerned, as well as to the efficiency of the work of borrowing.

The new bronze bank-screen at the loan desk improves the business appearance of the room, and facilitates, by the more orderly methods thus made possible, both the borrowing and the returning of books. There are still a few—a very few—students who find it hard to wait their turn, anywhere or in anything; but the number of these is decreasing, and with the present arrangement all are cared for with the least possible delay and with the greatest possible impartiality.

Meanwhile the pressure upon the periodical reading-room continues. For this there seems to be no present relief. This condition, together with the still overcrowded loan desk, points continually to the pressing necessity for a new building for the School of Law. With the present law reading-room used for

general periodicals, the present periodical room given to the department of cataloguing and classification, the temporary partition back of the loan desk removed and that entire room given to the desk and catalogue-cases—with a new desk, in horseshoe shape, to accommodate the largest possible number of borrowers, and with additional assistance behind the desk—most of the delays and slight vexations of the present will entirely disappear, and the administration of that department of the library will be as nearly perfect as possible.

Nearly a thousand volumes of the Phoenix collection are being rebound. The work of cataloguing and classifying all unbound material is being pushed rapidly, and a large number of pamphlets are at the bindery. Such sets as the Journals of the Houses of Parliament and similar public documents, together with the various reports from and of the Paris Exposition, are being classified and bound. The courtesy and loyalty of Commissioner Woodward have given this Library a very complete collection of Exposition reports and publications. The collection of state and municipal reports, and the reports of all public or semi-public organizations, is being enlarged with great rapidity.

More than usual, the heads of departments are making purchases which complete the library collections from the historical point of view. The time has come in which the resources of the library not only permit the acquisition of the most valuable current literature, but enable those interested to gather up the best of the past. This work is being done quite systematically; the books of the eighteenth century, in any given department, being secured before turning to those of the seventeenth, and so on.

In unpacking boxes which have been covered for years—for lack of room for their contents, or of staff-force to care for them—there have been very valuable "finds." It is sincerely hoped that before long a room may be set apart for use as a museum of bibliography. There is a vast amount of rare and instructive matter hidden away in the library at present, which ought to be at least within sight of every student who may be interested in such collections.

I. H. C.

The Holland Society of New York has deposited its library, consisting of about six hundred bound volumes and pamphlets,

with this University, and the books are now in the hands of the staff for inclusion in the general catalogue. The library has been stored for a number of years in the office of the Holland Society in the New York Life Insurance Building under not the most favorable conditions of accessibility; and, as a consequence, it has not had the prominence that its actual value deserves. Taken together, it is a miscellaneous collection consisting of books, principally in the Dutch language, that have, from time to time, been presented to the Holland Society, by its own members and others, in this country and in Holland. The nucleus of the library, and its most valuable part, is a collection of the works of Grotius and of books relating to him—in all some two hundred and fifty volumes—that were purchased in Holland and presented to the Holland Society, in 1890, by Robert B. Roosevelt, Esq., at that time its president.

The Grotius library, of which there is a special printed catalogue, is a collection of real scientific worth, since it exhibits in reasonable fulness the astonishing scope of the learning and literary activity of this one man, who was at the same time theologian, historian, philologist, poet, the founder of Dutch jurisprudence, and the father of international law. The collection at least represents the "Delft Oracle," as his countryman Vondel called him, in all of his many-sidedness. Most of his important works are here in numerous editions in the original Latin, in which the greater number of them were written, and in translations into various modern languages. This is particularly true of De veritate religionis christiana-after the "Imitation of Christ" by Thomas à Kempis, the greatest apologetic book of the Netherlands-which begins with the third edition, Levden, 1633; and of the De jure belli ac pacis, which begins with the fourth edition, Amsterdam, 1642. The "Introduction to Dutch Jurisprudence" is at hand in the first edition: Inleyding tot de Hollandsche rechts-geleertheyd, The Hague, 1631. Among other notable volumes are Chronicon Hollandia, Amsterdam, 1617; Historia Gotthorum, Vandalorum & Langobardorum, Amsterdam (Elzevir), 1655; Annales et historiæ de rebus Belgicis, Amsterdam, 1657; C. Cornelii Taciti opera, Amsterdam (Elzevir), 1672; Opera omnia theologica, in four volumes folio, Basel, 1732; Anthologia Græca cum versione latina H.

Grotii, in four volumes quarto, Utrecht, 1795-98, etc. Many of the volumes are beautiful specimens, in Latin type and black-letter, of the typography of the seventeenth century, when that art stood high in the Netherlands; and there are a number of Elzevirs. One of the most remarkable among the general works is a superb copy, with broad margins and clean pages, and bound in the original leather, of Montanus' Beschryving van America, Amsterdam, 1671, folio, which contains, in the description of "Nieuw Nederland," the celebrated copper-plate of "Novum Amsterodamum." This whole collection is an acquisition of undoubted value to the library resources of the University.

w. H. C.

THE GYMNASIUM

The general use of the gymnasium this season is a fair indication of the popularity and usefulness of this department. The figures show an average of nearly half a thousand students using the building every day, Saturdays excepted, or, to speak more exactly, 476 men. Of these, 9,976 students used the swimming pool this season up to the Christmas holidays, or 650 more than during the same period last year. At this writing 40 members of the freshman class have been taught to swim, while 13 are now in process of instruction, with 8 others to report. There are 250 men making preparations to engage in athletics this season, and registration for the various sports is by no means completed.

Barnard and Teachers College have invaded the gymnasium and the pool for two evenings of the week. It is impossible at the present time to predict the attendance, as the privilege has been open but one night. Twenty presented themselves to commence work. This small attendance is explained by the fact that a social entertainment took place that evening and also by the proximity of the mid-year examinations. The instructors for this evening class are the same as for the men.

The director has been reëlected secretary and treasurer of the Society of College Gymnasium Directors and also chairman of the convention committee of the American Association for the Advancement of Physical Education. This convention will be held April 18, 19, and 20: the first and last days in the Board

of Education Building, 59th Street and Lenox Avenue, and the second day in the College buildings. This day will close with a demonstration of adult work in the gymnasium, in which the various organizations throughout the city will take part.

W. L. S.

SCHOOL OF MEDICINE

Professor Weir received last summer the high distinction of being appointed honorary Fellow of the Royal College of Surgeons. He has been elected president of the New York Academy of Medicine for the present year.

The following table shows the number of students who have registered this year under the Faculty of Medicine and the proportion of such students holding college degrees.

	Total number of students	Number of students with degrees	Percentage of students with degrees
Pirst year	239	85	35.56%
Second year	190	65 60	34.21%
Inird year	150	60	40.00%
Fourth year	147	70	47.61%
Total	726	280	38.56%

The great advantages offered to the students of medicine through the Vanderbilt Clinic are indicated by the following record of cases treated there during 1900:

Department	Number of Patients	Number of visits paid by patients
Medicine	16,818	46,038
Surgery	5,509	25,231
Orthopædic Surgery	717	3,442
Neurology	2,125	10,495
Gynecology	3,055	12,392
Ophthalmology	3,915	10,522
Laryngology	3,957	9,391
Otology	1,390	4,189
Dermatology	3,710	11,335
Diseases of Children	4,836	12,021
Venereal Diseases	2,935	11,902
Total	48,967	156,958

Dr. G. G. Wheelock (P. and S. '64) has been elected a member of the board of managers of the Vanderbilt Clinic, to represent the Trustees of the University.

On the evening of November 14, 1900, the committee appointed for this purpose by the Alumni Association of the College of Physicians and Surgeons presented to Dr. Wheelock a testimonial in silver bearing the following inscription:

Fidelitatis Causa.

Presented to Dr. George G. Wheelock by the Alumni Association of the College of Physicians and Surgeons, the Medical Department of Columbia University in the City of New York, as a token of appreciation of his faithful and judicious services as Treasurer during the past twentyfour years. November 14, 1900.

The testimonial was accompanied by a letter which closed as follows:

The Association is grateful for the good care you have taken of its finances for the past twenty-four years, and appreciates the difficulties you have had in conducting faithfully the many separate funds entrusted to it. The testimonial carries with it not merely this acknowledgement of honest work done in behalf of the Association, but also the warm affection of all of its members. May you live long to render services equally valuable to other institutions, if not to us. Serus ad coelum redeas!

. . .

The American Physiological Society held its thirteenth annual meeting at Johns Hopkins University, Dec. 27th and 28th, 1900. Its membership, which is confined to those who have conducted researches in physiology, now amounts to eighty-eight, and includes seven officers of Columbia, viz: Professors Curtis, Chittenden, Cattell and Lee, and Drs. Gies, Cunningham and Rich-At the Baltimore meeting Professor Chittenden was reëlected president of the society, and Professor Lee was reelected secretary and treasurer. From the time of its foundation in 1887 the society has been very active. It holds annual winter meetings with the affiliated scientific societies, and an additional meeting once in three years in the spring with the Congress of American Physicians and Surgeons. It publishes the American Journal of Physiology, a monthly journal, the fifth volume of which began auspiciously in February, 1901. Professors Chittenden and Lee are members of the board of editors.

At the forty-second annual meeting of the Alumni Association of the College of Physicians and Surgeons, held at Sherry's on June 1, 1900, the following officers were elected for the ensuing year: President, L. Bolton Bangs, '72; vice-president, F. E. Beckwith, '71; secretary, F. R. Bailey, '95; assistant secretary, C. C. Carmalt, '91; members of the council, J. A. Blake, '89, W. P. Northup, '78, H. S. Oppenheimer, '76, G. G. Wheelock, '64; delegate to the alumni council of Columbia University, F. P. Kinnicutt, '71.

At the meeting of the council of the association, held on the same day, the following were elected trustees: J. G. Curtis, '70, A. H. Buck, '67, W. B. James, '83, S. W. Lambert, '85, G. G. Wheelock, '64.

The following were appointed to serve on the executive committee of the association: G. A. Spalding, '75, C. N. Dowd, '86, G. T. Jackson, '78.

The trustees elected G. C. Freeborn, '73, as treasurer for 1900-1901.

The office of Secretary of the Faculty of Medicine has been for years a conspicuous feature in the administrative function of the faculty. Besides the customary secretarial duties, which, in the case of so large and active an institution as is the College of Physicians and Surgeons, are many, the office carries with it certain executive functions. The secretary is the immediate guide and adviser of the student, and, while he is the medium of communication between the student on the one side and the dean or faculty on the other, he is able to relieve the dean and the faculty of many administrative details. Hence his office is one of multifarious duties and pronounced importance. The list of secretaries for the past thirty-eight years, which is here appended, is an honorable one:

John C. Dalton, 1863–1869. James W. McLane, 1869–1872. Thomas T. Sabine, 1872–1876. Edward Curtis, 1876–1877. John G. Curtis, 1877–1890.

George M. Tuttle, 1890-1895. Edwin B. Cragin, 1895-1899. Fred J. Brockway, 1899-1900. Edwin B. Cragin (pro tem.), Oct. 15th, 1900-Dec. 31st, 1900. James D. Voorhees, Jan. 1st, 1901.

Dr. James Ditmars Voorhees, who began his duties as secre-

tary on January 1st, 1901, is a graduate of Princeton, where he received the degree of A.B. in 1890 and that of A.M. in 1893. He studied medicine at the College of Physicians and Surgeons, and graduated with the degree of M.D. in 1893. Upon graduation he won the second Harsen prize for proficiency at exami-He then had a long term of service in the hospitals of New York City, being resident physician at the Presbyterian Hospital from 1894 to 1896, resident physician at the New York Foundling Hospital from 1896 to 1897, and resident physician at the Sloane Maternity Hospital from February, 1897, to August, 1900. In 1897 he was appointed instructor in obstetrics in the College of Physicians and Surgeons. He held this office for three years, and in 1900 was promoted to the tutorship in obstetrics, which he now holds. In 1900 the College of Physicians and Surgeons bestowed upon him the Stevens Triennial Prize for an essay entitled "Dilatation of the cervix by means of a modified Champetier de Ribes balloon."

. . .

At the February meeting of the Board of Trustees the resignation of Dr. Francis Delafield as Professor of the Practice of Medicine was accepted, to take effect June 30th, 1901. Hence, with the close of the present academic year, Dr. Delafield will retire from active service as a professor in the College of Physicians and Surgeons, thus carrying out an intention which he made known to his colleagues some years ago. Dr. Delafield's connection with the medical school has been long and close. after his graduation thereat in 1863 he was appointed a clinical assistant to Dr. Alonzo Clark, the professor of pathology and practical medicine; and in 1882 he became Dr. Clark's successor, having been his colleague for six years as adjunct professor. At Dr. Delafield's retirement, therefore, he will have been a member of the Faculty of Medicine for twenty-five years. As physician and professor Dr. Delafield has always recognized both the laboratory and the bedside as sources of knowledge equally indispensable to the progress of medicine toward the position of an applied science. He has always been a worker at pathology with his own hands; when physician to the Bellevue and Roosevelt Hospitals, and adjunct professor, he was largely concerned in the movement among the alumni of the College of Physicians and Surgeons which resulted in the founding of the pathological laboratory of their alma mater; and of this laboratory he was the first director, and a generous supporter. His teaching as professor deals with practice as based upon pathology; and in the title of his professorship pathology was formally included for many years. No one but a colleague of Dr. Delafield in the Faculty of Medicine can fully know how well he has served the college as a counsellor no less than as an eminent teacher; nor with what sincere regret his retirement will be accompanied.

F. S. L.

Department of Anatomy.—Professor Huntington represents the American anatomists on the board of editors of the Journal of Anatomy and Physiology, published in London.

On account of continued ill health Dr. F. J. Brockway has been obliged to resign the office of secretary of the faculty, and to give up his duties as assistant demonstrator of anatomy, with a year's leave of absence. His work in the dissecting room has been assigned to Dr. Carleton P. Flint, and his demonstrations to sections are now given by Drs. Vosburgh and Carmalt.

The Association of American Anatomists held its thirteenth annual session in conjunction with the affiliated scientific societies at Johns Hopkins University during the last week of December, 1900, under the presidency of Professor Huntington. The subject of the president's address was "The morphological museum as an educational factor in the university system." Professor Huntington also read the following papers: "The pectoral muscles of the primates"; and "Variations of the post-caval vein in reference to their developmental significance." Dr. A. Hrdlicka, of the department of anatomy, presented a communication on "The shape of the shaft in the long bones of the human skeleton." The association includes among its members the following officers of Columbia: Professors Huntington and Osborn, and Drs. J. A. Blake, Brewer, Brockway, Carmalt, Collins, Crary, Gallaudet, Martin, Rockwell and Vosburgh.

G. S. H.

Department of Diseases of Children.—The work of this department is being continued in accordance with former methods. The Wednesday clinic (carried on in the Vanderbilt Clinic building by Professor Jacobi) is closely attended by large classes. Dr. Jacobi's bedside instruction is regularly given to sections of from fifteen to seventeen students in the "Jacobi Ward" of Roosevelt Hospital, Mondays and Thursdays, at 5 o'clock. Dr. Francis Huber gives practical clinical instruction three times a week, from October to May, to sections consisting also of from fifteen to seventeen students, each of whom receives twelve of these methodical lessons during the course. Altogether the results of the teaching during the last few years have been such as to encourage further efforts to increase clinical—particularly bedside—facilities in this department.

Department of Orthopædic Surgery.—In the Vanderbilt Clinic, a department of orthopædic surgery was established in 1894, and at the present time it is the third in point of numbers in the city. The material for clinical teaching is supplied from the class of patients seeking relief at the institution, and it is seldom necessary to draw upon the Hospital for the Ruptured and Crippled to supplement the course of instruction arranged in systematic order. Every phase of deformity is illustrated, and it is difficult to make use of all the material which is presented.

Every Friday at 12 o'clock, the professor has an opportunity to illustrate the various forms of joint disease, not only in the non-deforming or early stages, but the deformities resulting from disease. The congenital deformities are fully represented, and pathological specimens kindly loaned by the Hospital for the Ruptured and Crippled are employed to show the lesions after a subject has been exhausted.

Routine methods of examination and the manner of recording observations are made important features of these Friday lectures. Operative cases are referred to the Roosevelt Hospital, and in this way the major operations come directly before the students in the fourth-year class.

The daily clinic is held by the chief of clinic and his assistants, the aim being the more intimate instruction in the principles of diagnosis, as well as the indications for joint-protection by mechanical procedures. The various appliances and plaster-of-Paris casts are shown in detail, thus enabling the student to

familiarize himself with the measurements as well as the indications for the same.

The professor and the chief of clinic dwell, in season and out of season, on the importance of early diagnosis and the prevention of disability and deformity by timely treatment. The close attention that is paid by every member of the class encourages the instructors and keeps up an interest which continues to the end of the session.

V. P. G.

Department of Pathology.—At the meeting of the Society of American Bacteriologists, held at Johns Hopkins University during the Christmas holidays, Professor Prudden was elected an honorary member.

At the last annual meeting of the New York Pathological Society Dr. Hodenpyl retired from the presidency of the society and Dr. Lartigau was elected editor of the society's Transactions.

The seventh volume of the "Collected Studies from the Department of Pathology" has recently been issued. It contains a table of contents of all the preceding volumes of the series, which was begun in 1890.

Dr. Prudden completed last September the fifth summer of his reconnoissance of the San Juan watershed in the adjacent regions of Utah, Arizona, Colorado, and New Mexico. This field-study has been undertaken with the view of locating and mapping the prehistoric ruins on the cliffs and in the valleys of this vast region. While some of the larger and more imposing of these ruins have been fully described, many smaller groups and hundreds of widely scattered and often very inaccessible sites are still mostly unknown except to the cattle-men and certain relic hunters.

T. M. P.

Department of Physiology.—A revised edition of "An American Text Book of Physiology" appeared early in the present academic year. Of the ten authors Professor Curtis contributed the article on "The mechanics of the circulation," and Professor Lee the article on "Reproduction."

At the fifth annual meeting of the New York State Science Teachers' Association, held at the University of Rochester, December 28th and 29th, 1900, Professor Lee gave an address on "The teaching of physiology in secondary schools."

Dr. Robert Coleman Kemp has recently published "Enteroclysis, Hypodermoclysis, and Infusion. A Manual for Physicians and Students." The greater part of the experimental work upon which the author's treatment of these subjects is based was per-

formed in the physiological laboratories of Columbia.

At the close of last year Dr. C. C. Stewart, who had served as tutor for two years, resigned to accept a position at the University of Pennsylvania. In place of the tutorship two assistant demonstratorships were established, and they have been happily filled by the appointment of Mr. Robert Allyn Budington, A.M. (Williams), and Dr. Nathan Williams Green, A.B. (Yale), M.D. (Columbia). Both of these appointees had formerly been students in this department. Mr. Budington's duties are mainly in connection with Course 2 in general physiology, while Dr. Green gives a considerable portion of the demonstrations of Course 3.

The January number of the American Journal of Physiology contained an article by Mr. Edwin B. Holt and Professor Lee on "The theory of phototactic response." The paper aims to show that the common assumption is unnecessary and misleading that the motor reactions of organisms to stimulation by light are of two kinds, namely reactions to the intensity of light (phototactic response) and reactions to the direction of its rays (photopathic response). The direction of the rays is effective only in determining on what part of the animal the light shall fall. There is no evidence that organisms respond to any other property of light than its intensity. Hence the distinction commonly made between phototaxis and photopathy as different forms of irritability is unwarranted.

For the past two years Dr. R. H. Cunningham has been investigating in this department the effects of strong electric currents on mammalia and other vertebrates, and the cause of death by electricity, about which there has hitherto been much speculation but little real knowledge. He has found that in the higher mammalia, such as the dog, and presumably in man, strong currents kill usually because of their effect on the heart. They cause the heart to pass into a state that is known in physiology as "fibrillation."

In this state the regular synchronism in the contraction of the muscular fibres of which the organ is composed—the synchronous contractions constituting the beat of the heart-is interfered with. The fibres contract irregularly and without coördination, the normal beat of the organ is impossible, and the circulation of the blood ceases. The result is death, unless the coordinate beat and the circulation be reëstablished before the brain, which is extremely delicate and perishable, becomes too profoundly depressed by the prolonged absence of the necessary blood. In the dog it has been possible to establish an artificial circulation of blood and continue it until the fibrillation of the heart gives place to normal action, and the animal has thus been resuscitated. In some cases, after cardiac fibrillation has been produced by an electric shock in any way, a subsequent momentary shock from a large condenser charged to a high potential so stimulates the heart as to remove the fibrillation and restore the normal beat. The necessity of applying these means of resuscitation immediately after the otherwise fatal shock has been received precludes their application in the case of accidents to human beings, except in very rare cases. When the electric current passes mainly through the head its effects on the heart may be subordinate. In such cases, which are rare, it may kill by paralyzing the part of the brain that controls respiration, thus stopping the breathing and causing asphyxia. Under such circumstances the immediate establishment of artificial respiration, as in drowning, may be useful. In the lower mammalia, such as rats and guinea-pigs, and in still lower vertebrates, such as turtles, frogs and fish, in which classes the cardiac fibrillation is less marked than in higher animals, Dr. Cunningham finds that the interference with respiration is the chief cause of death from electric shocks.

F. S. L.

Department of Physiological Chemistry.—Professor Chittenden has written the article on "Aliment," and Dr. Gies that on "Coloring matters, animal," in the new addition of Wood's "Reference Handbook of the Medical Sciences."

Drs. Asher and Gies have lately published the results of some experiments conducted by them at the University of Bern: "Ueber den Einfluss von Protoplasma-Giften auf die Lymph-

bildung," with a note "Ueber Lymphbildung nach dem Tode," Zeitschrift für Biologie, Vol. XI, pages 180 and 207.

In the symposium on medical education, which appeared in the *Philadelphia Medical Journal* for September 1st, 1900, Professor Chittenden contributed an article on "The method of teaching physiological chemistry." In the Philadelphia *Saturday Evening Post* for October, 1900, Professor Chittenden also wrote on "The practical college course for young men."

Two completed papers from this department are now in press: "The physiological and toxicological action of tellurium compounds, with particular reference to their influence on nutrition," by L. D. Mead and W. J. Gies (American Journal of Physiology); and "Some facts regarding ureine," by A. F. Chace and W. J. Gies (Medical Record). Several others are in course of preparation.

The following reports of original work in this department were made at the sessions of the American Association for the Advancement of Science, at this University, last June: "The composition of the endosperm and milk of the cocoanut," by J. E. Kirkwood and W. J. Gies; and "New methods for the separation of some constituents of ossein," and "Notes on the constituents of ligament and tendon," by W. J. Gies.

Beginning with this year two additional courses are offered in this department: "Course 2, laboratory course in advanced physiological chemistry," 6 hours, Dr. Gies and Mr. Cutter; "Course 3, laboratory course in special physiological chemistry," 12 hours, Dr. Gies and Mr. Richards. Each course has been well received and is being taken by as many men as the department is able to accommodate.

During the past summer a well-lighted room of good size, adjoining the laboratories of the department, was fitted up for experimental work in order to meet the increasing demand from special students for opportunities to engage in research in physiological chemistry. In spite of this increase of laboratory space, no rooms can be reserved for the work of the instructor and assistants, because of the large number of special students daily engaged in experimentation.

William D. Cutter, B.A., assistant in this department, spent several months at the University of Bern last summer, engaged in research with Professors Kronecker and Asher. The following papers, which have lately appeared, give the results of his work: "Effets du travail de certains groupes musculaires sur d'autres groupes qui ne font aucun travail," Comptes Rendus, T. CXXXI, p. 492; "Ueber die Abhängigkeit der Speichelabsonderung von der Zusammensetzung des Blutes," von L. Asher und W. D. Cutter, Zeitschrift für Biologie, Bd. XL, S. 535.

At the recent sessions of the American Physiological Society, held at Johns Hopkins University, the following reports of original work under way, or just completed, in this department were presented: "Does muscle contain mucin?" by G. A. Fried and W. J. Gies; "Methods of preparing elastin, with some facts regarding ligament mucin," by A. N. Richards and W. J. Gies; "A further study of the glucoproteid in bone," by P. B. Hawk and W. J. Gies; "Changes in the composition of the cocoanut during germination," by J. E. Kirkwood and W. J. Gies. Dr. Gies reported informally the results of an experiment, soon to be published, "On the excretion of kynurenic acid."

SCHOOLS OF APPLIED SCIENCE

School of Architecture.—The courses of study are the same as last year, but some changes have been made in the details of their administration. In the fourth year the time assigned to free-hand drawing has been spent in making studies from the nude—not finished drawings, shaded and "modelled," but outlines only. This answers the two-fold purpose of affording practice in prompt and rapid sketching, and of giving the students a knowledge of the proportions and action of the human figure. It is chiefly this that the architectural draughtsman needs to know.

The hours assigned to free-hand drawing in the second year have for a couple of months been given up to modelling, under the direction of Mr. E. R. Smith. The class have modelled both ornament and the human figure, both in the round and in the relief, from photographs and from casts. These exercises have sufficed to make the students familiar with the manipulation of the material and the handling of the modelling tools; so that they can study either the mass or the details of their designs in the round, as well as by drawings.

Under the head of "architectural essays" the students of the department have always had some practice in the writing of English, though it has been difficult to devise exercises that should be sufficiently interesting in themselves, and sufficiently germane to the other work in hand, to engage serious attention. This year, encouraged by the success of an experiment tried last spring, we have had the second and third year men write detailed descriptions of buildings shown in photographs or prints, analyze the compositions, particularly the details, and point out what seemed to be the strong or weak points of the designs. A week is allowed for this work, which is done out of hours, and the next week these papers are exchanged among the members of the class, who make drawings in accordance with the descriptions, the originals being meanwhile put in hiding. At the end of another week the descriptions are read by the writers before the class, all of whom make ten-minute sketches as the reading goes on. The photograph and the drawing are then shown to the class and, with the sketches, are hung up for exhibition in the corridor which serves as a hall for the display of all current work.

All this proves interesting and instructive, and it serves several useful ends. Selecting a building to write about makes the men familiar with the collections; writing the description is as useful an exercise in English as any, and it has the merit of being strictly pertinent to the work of the school; the study which this requires involves some experience in analysis and criticism, and reconstructing the design from the elements thus presented gives good practice in the grammar and rhetoric of architectural composition, as well as in rapid drawing of architectural subjects. Finally, the results are brought into comparison with the executed work of the masters, than which nothing could be more instructive. These results are often surprisingly like the originals; and where they signally differ from them, as often happens from some omission or error in the description, or some misconception on the part of the draughtsman, the comparison is no less interesting and is by no means always in favor of the original building.

But a chief advantage of these exercises, from an architectural point of view, is that the class are thus given a critical acquaintance with fifty or a hundred buildings which they would otherwise know only superficially, if at all, and that they have their attention directed to the little things upon which the individuality and special expression of each building depend and which constitute the characteristic distinction between buildings that are otherwise much alike. As literary exercises the papers have the advantage of being directed to a definite end; and if this is not attained, that is, if the descriptions are not full and clear, they are self-condemned. The next step is to apply to plans of buildings the same scheme which has worked so well with elevations.

An interesting variation has also been made in the work of the first year-a year naturally devoted to the beginnings of things. The study of classical architecture necessarily begins with the study of the five orders, but this is beset with two difficulties. In the first place, they take a good while to learn, so that the designing of compositions in which they are to be employed is unduly deferred. One would like to have the men begin these things at once. In the second place, the precise knowledge of dimensions and proportions which this study involves, savors more of statistics than of the fine arts. Those masterpieces of decorative design, the Ionic and Corinthian capitals and entablatures, are presented to the beginner not as things of beauty, as they should be, but as arrangements of modules and parts of modules in certain arithmetical relations-which is just what ought not to happen. All this we have managed to avoid this year by teaching only one order, the Tuscan, and then proceeding at once to its uses and applications. This is perfectly practicable, for the Greeks, through a chief part of their history, knew but one order, and vet found it sufficient for masterpieces. This gives time, before the formal study of the other orders is reached, to take them up in a more artistic and less scientific way, using them as subjects for free-hand and mechanical drawing; so that when the time comes to explain the rules for getting them just right, their form and spirit have already become familiar, and the arithmetic merely supplies a "felt want."

This procedure suggested a novel and entertaining as well as instructive exercise. As soon as they had learned their Tuscan column and entablature, the class were told to select from the portfolios of Roman palaces some masterpiece of the Renais-

sance—Doric, Ionic or Corinthian—and to re-draw it, substituting the details they had learned in place of the unfamiliar forms. It was a sort of an exercise in translation, or rather, perhaps, an example of the *lingua romana in bocca toscana*. This has worked admirably, making these details familiar by use and repetition, and giving, by anticipation, a bowing acquaintance, so to speak, not only with the rest of the orders, but with domes, windows, arches and other features which, also, it is well to be practically familiar with before the time comes for a more formal acquaintance. The work has proved interesting to do and interesting in the result; and it is instructive to notice how little some buildings, and how much others, suffer from this masquerade.

On January 11 Mr. George B. Post, kindly came to the School and read to the students a paper upon the construction of buildings with iron and steel frames, embodying the results of his observation and experience. He will be followed, during the spring, by Mr. Bruce Price and Mr. E. D. Lindsey, and by Mr. H. C. Butler, who will relate the story of his investigations in northern Syria, in confirmation of the work of M. de Vogüé.

On January 5, and again on February 16, the draughtingrooms of the School were occupied during the day and evening by the students of the Society of Beaux Arts Architects in making sketches for the competitions in design instituted by the Society among draughtsmen in offices.

W. R. W.

School of Chemistry.—Several changes have been made in the undergraduate courses in organic chemistry. Hereafter the subject of the lectures to third-year chemists will be the chemistry of methane and its derivatives (Chemistry 31), the fourth-year course being devoted to the carbocyclic and heterocyclic compounds (Chemistry 32). The general laboratory course (Chemistry 33) has been set off by itself, to permit of its being taken by candidates for higher degrees who have already a sufficient grounding in the theoretical side of the subject. The elementary lecture course (Chemistry 20) has been remodelled in order to adapt it to the needs of non-professional students in the College, the School of Medicine, and so forth. In the future this course will be more popular and less technical in character,

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the lectures being liberally illustrated with material from the chemical museum, and by experimental demonstration. The recitation-hour has been dropped, making it a two-hour course. The lectures will be given next year by Dr. Caspari. At the November meeting of the New York Section of the American Chemical Society, Mr. D. C. Eccles, a graduate student in organic chemistry, read a paper on antipyrine and its derivatives. illustrating his discussion with numerous charts and diagrams intended to show the importance of this substance, both chemically and medicinally, and the great number of compounds which have been prepared from it. The paper will appear in the April number of the School of Mines Quarterly .- Dr. Tingle has concluded his studies upon the synthesis of amines by the use of alkyl salicylates. His results were published in the February number of the American Chemical Journal .- Dr. Caspari has contributed to the same journal articles upon the new radio-active substances, and upon the higher superoxides of hydrogen.-Mr. Bogert has been elected vice-chairman of the New York Section of the American Chemical Society.-Through the kindness of a friend the laboratory has received twenty-five pounds of crude limonene, which will prove most interesting material for researches upon the chemistry of the terpenes. M. T. B.

Department of Metallurgy .- The laboratory course, 6A, which went into effect for the first time in January, 1901, departs so far from the established type as to merit description. It is for students in mining engineering, as distinguished from those in metallurgy. The old type of laboratory instruction aims to reproduce with all practicable fidelity the metallurgical processes as they are carried out on an industrial scale. Course A6 lays no stress on this, but attempts chiefly: first, to give the student such acquaintance with the instruments of precision that he will hereafter be able to understand and interpret data obtained with them, and, should need arise, will know also what steps to take in order to acquire actual skill in their use; secondly, to familiarize him with the principles, the more important phenomena, and the means of control, of certain typical processes, without distracting his attention by an attempt to familiarize him with the administrative and mechanical difficulties of these processes.

It is thought that we thus give him what is taught with greatest efficiency and ease in a school, and with the greatest difficulty in industrial works; and that the reverse is true of what we omit to teach him, or pass by without especial accent.

The five subjects which the course included were as follows:

(1) Microscopy.—In this each student prepared for the microscope, first, specimens easy to prepare—the copper silver alloys and next, specimens of the greatest industrial importance—those of steel. In doing this he learned, first, the methods of grinding and polishing, of developing the structure by heating and by etching separately, and of sketching the microstructure; and second, the laws of the eutexia, the relation of the constitution and structure of alloys to their composition, and the influence of thermal treatment. In short, such skill as he acquired was used in observing phenomena in themselves of great importance. Pyrometry.—Here the student learned the principle of the thermoelectric pyrometer, and acquired a certain degree of crude skill in calibrating the instrument, and in observing the pyrometric phenomena attending the critical temperatures of steel. He thus at once learned the use of the instrument, and in using it became acquainted with phenomena of the first technical importance. (3) The Thermal Treatment of Steel.—Here the student performed experiments which illustrate the manner in which the hardening power of steel is acquired and lost, and the relation of these phenomena to those of magnetism; and also a variety of experiments illustrating how injuries to steel arise through improper thermal treatment, and how they can be cured by either thermal or mechanical treatment, observing also the symptoms of the injury and of its cure. (4) Roasting Copper Ores.—Here he roasted copper ores in a reverberatory furnace, observing the temperature at short intervals, and noting the progress of the roast by determining the quantity of copper in each of the three states of sulphide, oxide, and sulphate. He was thus shown, both by the eye and by pyrometric measurement, the temperature suitable for the different stages of the process, and then in a rough way the order of the chemical changes and their relation to the temperature. (5) Desilverizing Lead.—Here he desilverized a lot of lead by the Parkes process of removing the silver in a relatively infusible silver-zinc-lead

alloy, and controlled the progress of the process by assaying the material under treatment.

This is the outline of our first year's work; it is expected that the course will be considerably expanded for another year, though following the same general direction.

The effectiveness of the course was increased by two steps which also lessened the administrative difficulties of giving such detailed instruction to a class of some twenty-eight students. First, terse but very detailed written explanations of the principles involved, the phenomena to be noticed, and the importance of the matter, were supplied; this made the instruction far more effective, accustomed the student to working from written instead of oral instructions, exemplified to him the value of conciseness, clearness, and comprehensiveness in specifications, and lightened incalculably the labor of the instructors. Second, the students were divided into small squads, each under the charge of a captain chosen from among them by the officers of the department. Thus students of especial promise had the educational advantage of responsibility and command, and were incited to added zeal; the others naturally consulted them more freely than they could consult the officers of the department, and the latter were freer to give their attention where it was most needed.

The department feels greatly encouraged by the results, and especially by the interest shown by the students.

The laboratory course 6, for students in metallurgy, is nearly four times as extended as the course 6A, just described, and covers a correspondingly great range of subjects. It allows the student much choice in electing the particular branches on which he shall experiment. But the general aim is the same as that of course 6A, though, because of the much smaller number of students, the squad system is not used.

The department has received from the estate of its founder, Professor Egleston, a large addition to the Egleston Library which he founded during his life, and also his very valuable collection of scientific instruments and tools. This includes a very fine Ross microscope and three lathes.

The following are the most important investigations now in progress, chiefly by candidates for higher degrees: (1) "The influence of thermal treatment on the micro-structure and tensile

properties of low-carbon steel," by R. H. Bradford, B.S., university fellow and candidate for Ph.D.; (2) "The temperature limits of the conversion of martensite into graphite in pure cast iron," by H. P. Tiemann, B.S., candidate for A.M.; (3) "The temperature limits of the conversion of martensite into graphite in silicon-bearing cast iron," by E. Bukofzer, B.S., candidate for A.M.; (4) "The influence of temperature and fineness on the removal of sulphur and arsenic in the roasting of copper ores," by C. M. Schwerin.

Professor Howe has received the decoration of Chevalier de la Légion d'Honneur, of France.

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SCHOOL OF POLITICAL SCIENCE

The Faculty of Political Science was well represented at the joint meeting of the American Historical Association and the American Economic Association, held at Detroit and Ann Arbor during the Christmas holidays. The delegation consisted of professors Mayo-Smith, Goodnow, Seligman, Dunning and Ripley, all of whom participated in the discussions of the session. A notable feature of the gathering was the large number of recent students and graduates of the school, who were present as representatives of the departments of history, economics and public law in other colleges and universities, chiefly western.

Professor Moore gave a lecture in February, in the course of the Vassar Institute at Poughkeepsie, on the territorial growth of the United States. On "Marshall Day" he delivered an address before the Bar Association of Delaware on the work of Marshall in the field of international law.—Professor Burgess has in press the concluding two volumes of his "History of the United States to the Close of Reconstruction."—Professor Goodnow delivered an address on January 29, before the Academy of Political Science, on the work of the commission for the revision of the New York City Charter. On February 2 he sailed for Europe and Egypt on his sabbatical leave of absence, which had been postponed that he might serve on the charter revision committee. He will resume his courses in October next.—For the interval Professor Munroe Smith has been elected acting-secretary of the faculty.—In January Professor Seligman delivered an

address at Ann Arbor before the Michigan Political Science Association, on the questions of interstate taxation.—Professor Giddings has recently been elected vice-president of the Institut International de Sociologie—the first instance in which an American has been so honored.—Professor Ripley has been made expert agent on transportation by the United States Industrial Commission. He will, however, deliver his lectures at Columbia as usual.—Mr. J. W. Garner, university fellow in public law, is the author of a "History of Reconstruction in Mississippi," which is announced for early publication by the Macmillan Company.

The Political Science Quarterly, which completed its fifteenth volume with the number for December, 1900, has in preparation a general index to the whole fifteen volumes.—The "Series in History, Economics and Public Law" has now reached its thirteenth volume. Volume XIII, No. 1, recently published, is a work upon "Legal Relations of Married Parties," by Isidor Loeb. In the near future the series will include: Vol. XIII, No. 2, "Political Nativism in New York State," by Louis Dow Scisco; Vol. XIV, No. 1, "Loyalism in New York City during the American Revolution," by Alexander C. Flick. Vol. XV, "Civilization through Crime," by Arthur Cleveland Hall, is expected to appear in the spring.

Department of History.—A very gratifying increase in the number of students receiving instruction is revealed by the statistics for 1900-01. The total is 669, as against 448 in the preceding year—a gain of 221, or nearly fifty per cent. This total is exclusive of the 28 who take the course on methods of teaching history, given in Teachers College.

The sudden expansion of the demand on the teaching force has somewhat taxed the resources of the department, but despite this fact, some extension of the educational tender is contemplated for the ensuing year. Professor Munroe Smith, whose course on Roman History was suspended through the demand made on him for work in Spanish Law, will resume the course and carry it through the whole year, instead of one term, as heretofore.

In the college work of the department perhaps the most impressive fact is the usefulness of History A, the required course in general history. The foundation laid by this course enables those students who elect the more special courses to handle their subjects with greatly enhanced intelligence and profit; and the instructors who have charge of the later courses are relieved of much embarrassment and vexation that are incidental to the work of students who are wholly new to the field. History A is conducted this year by Dr. Shepherd and Mr. Shotwell.

In the university work of the department, the History Club has continued to furnish a central stimulus to the interest of both students and instructors. At the November meeting Dr. James Ford Rhodes, the eminent historian of the United States since 1850, read a most entertaining and instructive paper on the writing of history. In January Professor Robinson discussed the little known but significant "Confessions" of Petrarch; and in February Professor George B. Adams, of Yale, well known for his works on mediaeval history, addressed the club on certain features of feudalism.

The department was represented at the Detroit meeting of the American Historical Association, during the Christmas holidays, by Professor Dunning, who is a member of the executive council, and Dr. Shepherd. A paper was read by the former on the undoing of Reconstruction. Professor Osgood was honored by the association with the appointment to the chairmanship of the Historical Manuscripts Commission, but has felt obliged to decline the position. His report on the official records of Greater New York, prepared in connection with the National Archives Commission, will appear in the next volume of the Historical Association's publications.

Professor Sloane has in press a volume on the Church in France during the Revolution.—Professor Robinson is soon to publish a collection of essays on recent constitution-making.—Professor Dunning lectured recently before the Vassar Brothers Institute at Poughkeepsie on the basis of our territorial expansion, and is announced to contribute an article to the series on Reconstruction now running in the Atlantic. w. A. D.

SCHOOL OF PHILOSOPHY

Department of Germanic Languages.—The Holland Society lectures upon Dutch literature, which have now become, let us

hope, a permanent feature of the work of the department, are again being given by Mr. Leonard Charles Van Noppen—this time, however, for the greater convenience of the members of the Society, in the chapel of the Fifth Avenue Collegiate Reformed Church, corner of Forty-eighth street and Fifth Avenue. The lectures of Feb. 26, March 5, and March 12 will deal with Vondel in different phases of his work; that of March 19 with Hooft, the "Dutch Tacitus"; that of March 26 with Huygens, the poet of manners, and that of March 26 with the Nieuwe Gids school of the present time. The lectures are free to the public and the time is half-past four in the afternoon.

The usual course of miscellaneous public lectures in the German language is also being given on Thursdays at half-past four in Havemeyer Hall. The speakers and their subjects are as follows: Jan. 24, Rev. Gustav Gottheil, "Die Poesie in der Prosa des Lebens"; Jan. 31, Dr. Hanns M. von Kadisch, "Die zoologische Frage Nordamerikas"; Feb. 7, Mr. Udo Brachvogel, "Joseph Victor von Scheffels 'Frau Aventiure'"; Feb. 14, Mr. Charles A. Bratter, "Der Redacteur, der Stiefbruder des Schriftstellers"; Feb. 21, Dr. Ernst Richard, "Deutsches Studentenleben"; Feb. 28, Mr. Heinrich Conried, "Das moderne deutsche Drama"; March 7, Dr. Max Blau, "Heinrich von Kleist"; March 14, Rev. August Ulmann, "Lessing und seine Zeit"; March 21, Dr. Louis Viereck, "Erinnerungen an Deutschlands grosse Zeit, 1870–71"; March 28, Mr. George von Skal, "Bildung und Intelligenz."

The Deutscher Verein is developing a vigorous and useful activity. Its membership has been largely increased and its fortnightly meetings are highly interesting and profitable. Addresses have lately been given in the German language by various distinguished speakers, among whom may be mentioned Dr. Frederick W. Holls, Professor M. D. Learned and Dr. Louis Viereck. On Jan. 21 Director Conried of the Irving Place Theater once more testified to his interest in Columbia by placing five hundred tickets to a performance of Minna von Barnhelm at the disposal of the Verein, to be sold for the benefit of its library. Over \$350 was realized for this purpose.

The department will this year take part in the work of the summer school. Three courses will be offered, corresponding roughly to the regular courses designated as A, 2 and 3. All of them are to be conducted by Mr. Hervey.—In December Professor W. H. Carpenter lectured at Harvard University upon Language as an element of Germanic studies.—Mr. Rudolf Tombo, Jr., has been elected secretary of the editorial staff of the QUARTERLY.—On Jan. 23 Professor Thomas lectured at Teachers College on the educational position of the modern languages, and during the preceding week addressed the newly formed Association of High School German Teachers of New York on some of the practical aspects of class-room instruction.

Department of Latin.—Professor Peck is reading the proofs of a condensed dictionary of classical literature and antiquities, which will be issued during the summer. It is not a condensation of his larger work, but has been newly written upon a different plan and will embody new material which has become available within the past five years. He is also editing the Satires of Juvenal with an introduction, commentary, and appendices.

Of the eleven courses offered by the department of Latin in 1900-1901 to graduate students, five are of a strictly archæological character. These courses cover very nearly the entire field of Roman archæology, since they include first of all the study of inscriptions (epigraphy), of manuscripts (palæography), of coins (numismatics), the study of the topography and monuments of ancient Rome, and finally, of the private life of the Roman people. It is the intention of the department to offer, in the near future, courses on the public life of the Romans and a general course in Roman art and archæology.

With a view to the more satisfactory study of epigraphy through contact with the actual remains of antiquity, the department has recently acquired by means of the Drisler Fund a number of inscriptions on stone and lead, together with stamped fragments of pottery and several bronze stamps. In this collection there are sixteen sepulchral inscriptions cut in stone, of which only one has been published; nine pieces of lead pipe stamped in relief in the mould, four of which are from the collection of J. B. Guidi and have been published; two lead plates inscribed in relief, and finally seventy-five fragments of Arretine ware. One

of the stone inscriptions refers to Hylas, a charioteer (agitator) of the blue faction, and states that he won seven races in a boy's two-horse chariot; that as a full-fledged contestant he had been successful in a four-horse chariot twenty-ones times; that he had been recalled because of a false start three times, and finally, that he had taken the second prize thirty-nine times, and the third forty-one times. Another inscription states that Faustina has set up the stone in memory of her husband Primitibus, who was forty years old and with whom she had lived twelve years, eight months and seven days. The pupils of her husband, Felix and Maximinus, joined her in this act of respect to his memory. Another reads thus: "To thee, O most revered wife, who art happy in thy death, being spared the grief of seeing the deeds of thy cruel son, and to you fortunate ones, my dearest daughters, who leave behind you a brother unworthy of your name." An inscription on a lead plate is in relief and as far as it can be deciphered reads: "I am dead, I flourished while I lived and I had a good time, I consecrated happy years to Bacchus and sleep." A Flavius Chrysogonus, freedman of Augustus, holding the office of adiutor tabulariorum rationum hereditatium, assistant book-keeper in the fiscal department of inheritances, in the reign of Vespasian, is honored by his wife who declares that she "lived with him for seventeen years without disagreement."

The seventy-five potsherds of Arretine ware represent the pottery which is distinctly Roman. It was originally made at Arretium (Arezzo) in Etruria in the second century B. C., and became the most commonly used material for table and kitchen ware for the middle and lower classes during the best period of Rome. All the fragments are stamped with the name of the maker—thus FELIX, and on the bottom of this vessel the owner has scratched some letters of his name, EVTY for Eutyches. The three bronze stamps are of the class used in Pompeii for stamping bread, bearing names in relief and with letters in retrograde order, e. g., L. FVLVIVS QVENVS; L. MVMM (1) CALLISTI i. e., belonging to Lucius Mummius Callistus. The department also possesses a large number of paper "squeezes" which are used with excellent results in the study of epigraphy. There is at present at the service of the department the nucleus of an archæological museum which is the property of Dr. Olcott.

Oriental Languages.—Professor Jackson sailed for India in January and expects to return in the early summer—in time for his courses upon Shakspere and Chaucer in the summer school. His address in India will be care of Thos. Cook & Sons, Bombay. During his absence Dr. L. H. Gray will have charge of his classes in Language and in Sanskrit, and his courses in Avestan and Pahlavi will be given by Mr. Yohannan.

The Modern Syriac-English dictionary, for which Mr. Yohannan has been collecting material during nearly twenty years, is now completed. The first part has already appeared and the second will soon follow. The work treats in a most comprehensive manner of all the various dialects of the vernacular Syriac. It includes over 50,000 words and covers about 1,200 octavo pages. Every word is traced to its original language—Arabic, Persian, Turkish, Kurdish, Greek, etc.—and written in its own script. This is the first work of its kind, as there is no dictionary of modern Syriac in existence.

Psychology and Anthropology.-Professor Cattell, Professor Boas, Dr. Farrand, Dr. Thorndike and Mr. Davis attended the meetings of the scientific societies held at Baltimore during Christmas week. Professor Boas gave the address as retiring president of the American Folk-lore Society, his subject being the mind of primitive man. He also read papers before the Anthropological Section of the American Association for the Advancement of Science on a catalogue of crania and skeletons, and on the Kwakiutl Indians, giving a brief summary of his summer's work among that tribe. Dr. Farrand, who has for some years been secretary of the American Psychological Association, was elected first vice-president of the American Folklore Society. Professor Cattell, who is a member of the councils of the American Association for the Advancement of Science, the American Society of Naturalists and the American Psychological Association, read before the last mentioned society a paper on psychological tests of abnormal and exceptional individuals. Dr. Thorndike and Dr. R. S. Woodworth, a recent Columbia graduate, reported the results of an experimental study of the influence of special training on general ability.

J. MCK. C.

Department of Romance Languages.—For his efforts to spread the knowledge of the French language and literature in the United States, Professor Cohn has lately received from the French Republic the decoration of a Chevalier de la Légion d'Honneur. He has also been elected first vice-president of the Modern Language Association of America.

Dr. B. D. Woodward met with a distressing accident while on his way to New York by the steamer St. Louis. An unfortunate fall upon the deck of the ship resulted in the breaking of his leg just above the ankle. We are happy to state that he will not be permanently injured, and that he is progressing satisfactorily toward recovery.

The department will this year offer two courses in the summer school—one a course corresponding in part to French 2, the other to Spanish 1. Both courses will be conducted by Mr. Loiseaux.—Mr. Bargy lectured in January before the Cercle Français de l'Alliance, of Boston, upon Edmond Rostand and Cyrano de Bergerac.—On January 5th Professor Speranza addressed the Vassar Institute of Poughkeepsie upon Dante in relation to his time and work.—In December, Dr. Page gave a lecture before the Thursday Morning Club, of Madison Avenue, on American poetry of to-day.

A. C.

SCHOOL OF PURE SCIENCE

Department of Astronomy.—The report on the examination of the plates made at the Lick Observatory to test the Crossley reflector was published in the January number of the Astrophysical Journal. The result shows that the instrument can be employed with great promise of a fine determination of the parallax of Eros, and hence of the solar parallax. The Lick Observatory has sent to Columbia fifty-four plates of Eros, taken October 6–12, 1900. The complete measurements and reductions of all the Lick Eros plates will require several years, because of the labor involved and because the positions of standard stars needed will not be obtained for a year or two. The Columbia Observatory has agreed to do this work, and is enabled to do it because of the funds provided by that generous patroness of astronomy, the late Miss Catherine W. Bruce.—The director of the Yerkes Ob-

servatory, Professor George E. Hale, has requested a similar examination of plates to be taken with the 40-inch lens, by the use of a color screen. Plates of the Pleiades will be obtained for the purpose.

Anders Donner, director of the Helsingfors Observatory, Finland, has sent word that the polar telescope pier, mounting and housing, have been completed, and that the instrument will soon be ready to photograph the stars within one degree of the north pole, on the plan proposed by Professor Jacoby. An illustrated paper on this subject was read by Professor Jacoby before the New York Academy of Sciences in January.

Dr. S. A. Mitchell has been invited to go to Sumatra, with the U. S. Naval Observatory party, to study the eclipse of May 18, 1901. The party sailed from San Francisco on Feb. 16, and will return in July. The trustees have granted the required leave of absence, and Professor Rees has raised the necessary funds to employ a tutor ad interim. Dr. W. C. Kretz has been appointed to the position.

A paper by Professor Rees, giving the results of observations made by various parties on the November meteors for the years 1898, 1899 and 1900, was printed in the February number of Popular Astronomy. In the same journal is an abstract of Dr. Kretz's paper on "The positions and proper motions of the principal stars in the cluster of Coma Berenices, as deduced from measurements of the Rutherfurd photographs." This paper was Dr. Kretz's doctoral dissertation, and has been printed in full by the Columbia Observatory as Contribution No. 16. Contributions 17 and 18 are in type. No. 17 is a second paper on the Pleiades by Professor Jacoby, and No. 18 is Dr. G. N. Bauer's doctoral dissertation on "The parallax of Mu Cassiopeiæ and the positions of fifty-six neighboring stars, as deduced from the Rutherfurd photographic measures." Miss Furness's dissertation has been printed as Publication No. 1 of the Vassar College Observatory and is entitled: "Catalogue of stars within one degree of the north pole, and optical distortion of the Helsingfors astro-photographic telescope, as deduced from photographic measures."

It is gratifying to record that former graduate students in the department are holding various important positions. Thus: H.

S. Davis, Ph.D., and F. Schlesinger, Ph.D., are observers, under the U.S. Coast and Geodetic Survey, for variation of latitude on the international scheme, the former being stationed at Gaithersburg, Md., the latter at Ukiah, Cal.; G. N. Bauer, Ph.D., is assistant in mathematics at the University of Minnesota: Miss Furness is assistant in the observatory at Vassar College, and P. W. Tompkins, A.M., is professor of astronomy and mathematics at Lawrence University, Appleton, Wis.

Professor Rees has recently received from the French government the decoration of a Chevalier de la Légion d'Honneur.

The observatory at Tasch Kent, Russia, has just published a volume by W. Stratonoff in which the author has made full use of Jacoby's methods of reduction of photographic star-plates. Also in the Annales of the observatory at Bordeaux, Tome IX., the director, Dr. Rayet, gives an extended presentation of the same methods.

J. K. R.

Department of Botany .- A most useful adjunct of the department is the direct connection, through members of the staff, with the editorial department of the Torrey Botanical Club. This organization now supports three grades of publications:-(1) The Memoirs, published at irregular intervals, latterly averaging a volume a year. These contain longer technical papers, a single paper forming a volume as in the case of Vol. 7, containing Dr. Howe's "Hepaticæ and Anthocerotes of California," or the last-issued Vol. 9, by E. S. Salmon, F.L.S., a monograph on the Erysiphaceæ; or they may consist of from four to six shorter papers on different features of botanical research. (2) The Bulletin, published monthly, which commenced as a four-page leaflet in 1870, and in the volume just completed included 678 pages. This is now to be restricted to technical papers and an index of recent literature relating to American botany, which included last year 856 titles and is reprinted each month in card-catalogue form. (3) Torreya, a monthly for shorter communications, reviews, proceedings of the club, and for the publication of botanical news and notes. Dr. Marshall Avery Howe is the editor of this new venture, and the first number was issued in January, 1901. The Journal of the New York Botanical Garden, edited by Dr. MacDougal, is intended primarily for the membership of the Garden staff and records the progress of that institution. These, with the Bulletin of the New York Botanical Garden, which contains the annual reports of the director, and in addition various technical papers, form a sufficient series for ready and prompt publication for the members of the staffs of the two institutions. The publications of the Torrey Club are also open to any contributors. The above publications are in octavo. The Memoirs of the Garden, in royal octavo, and the Memoirs of the Department of Botany, in quarto, offer further facilities for botanical publication, in form suited to any monograph or result of research. The Contributions of the two institutions consist of excerpts or reprints of papers by members of the staff, or by students, which have first been printed in the above-named or other periodicals.

One special feature of the work of the department consists of the weekly botanical conventions that are held Wednesdays at 4 p. m. at the Garden. Papers reviewing work in progress or completed by the staff or students, or reviews of the progress of research elsewhere are read and discussed with interest and profit.-Mr. J. E. Kirkwood, graduate student, has just been appointed to the vacant instructorship in botany in Syracuse University. He has lately completed a valuable piece of minor work in physiological chemistry on the chemical changes that take place during germination of the cocoanut. He will continue his work on his thesis in his major subject.

Dr. N. L. Britton, emeritus professor and director of the New York Botanical Garden, was in Europe during the month of October and part of November. He was a delegate to the botanical congress at Paris, and visited the botanical gardens at Zürich, Berlin, and Kew, and various botanical museums, and secured valuable material for the collections at Bronx Park.

Professor Lloyd and Dr. MacDougal read papers before the Society of Plant Morphology and Physiology at its recent meeting in Baltimore. L. M. U.

Department of Physics.—The American Journal of Science for October, 1900, published an article by Professor Rood on high electrical resistance. The same journal has just accepted an article by Dr. Tufts on the flow of sound-waves through obstructing media, and will shortly publish it. At the recent meeting of the American Association for the Advancement of Science, Mr. Parker read a paper, soon to be published, on his newly invented "percentage electrical bridge." At present he is engaged in an investigation of the effects of weak electrical fields on steel bars. Mr. Pegram is studying the emanations from radium, thorium and uranium, and has already obtained some results that have been published in Science. Mr. Trowbridge is occupied with the study of new methods for magnetizing steel. Mr. Davis is making further investigations of the acoustic force recently described by him in the American Journal of Science, and Dr. Tufts is adding to the material which he has already published.

Professor Hallock contributed an article to the New York Sunday Herald for Dec. 30, on the coming electrical age. He also delivered an address in January before the Washington Academy of Sciences, on the progress and tendencies of physics. More recently he has addressed the Columbia Chemical Club on the study of chemistry in Germany in 1880. On January 7th, Mr. Pegram read a paper before the New York Academy of Sciences on the reflection of light from white surfaces.

A large grating spectroscope, belonging to Barnard College, has been set up in one of the laboratories and is in daily use. Arrangements for the protection of the galvanometer in the electrical laboratories from street currents have been made, and their efficiency has been improved ten-fold. A mechanical assistant is greatly needed by the department; at present all the apparatus used in research work is constructed by the professors and assistants themselves, with such skill as they may individually possess.

0. N. R.

TEACHERS COLLEGE

By recent action of the Trustees of the University the degree of B.S. will hereafter be conferred upon persons recommended by the faculty of Teachers College as having completed a four years' course of study, provided that such course include (1) the subjects of the Teachers College "collegiate course," or their equivalent in some other approved institution, and (2) a two years' professional course leading to a College diploma.

The work of the educational museum is progressing in various directions, but pending the completion of the Horace Mann School building is much hindered by lack of space. An important feature in the development of the museum will be a large collection of photographs, from all parts of the world, illustrating school architecture, ventilation, sanitation, etc. It is proposed to include also other material, such as photographs of race types, and pictures illustrating the various phases of educational work among the poorer classes of New York. The photographs will be uniformly mounted and made available, like a reference library, for individual study and for class-room demonstration. In his last annual report Dean Russell speaks of this department as follows:

The success already attained in this field warrants us in asking further support in the future. We need materials for practical demonstration of the subjects taught in school and college, but we also need materials of value in the history of education, in the organization and administration of school systems, and in the theory and practice of teaching at home and abroad. We could exhibit to advantage, as I stated years ago, the essential features of special devices in the heating, lighting, ventilation, sanitation and equipment of school buildings. We should have larger collections than we now have in the various fields of science; not that we need a complete natural history museum, but here, as in other fields, we should have carefully selected objects that will illustrate types or general ideas of service in school work. Such a museum need not be, in my opinion, either immoderately large or unduly expensive. But if it were both large and expensive it would soon pay for itself in service to us and to the educational public. We have had calls within the year from Russia, Germany, England, and many parts of our own country, for information and assistance that only such a department could give. Such a museum might easily be made a national, almost an international, clearing-house of concrete educational ideas.

The November number of the *Record*, which dealt with handwork in its various forms of domestic art, domestic science, fine arts and manual training, differed from its predecessors in being illustrated. Besides articles by the directors of these various departments, it contained more than a hundred pictures illustrating the work of school children in all grades. The first number of Vol. II., recently issued, is devoted to a consideration of biology as taught in the Horace Mann School.

The first number of the "American Teachers Series," edited

by Dean Russell, has just come from the press of Longmans, Green & Co. It is the work of Professors Bennett and Bristol of Cornell University, and is devoted to the teaching of Latin and Greek in the secondary school. Other numbers are in preparation by various specialists, among whom Columbia is well represented. The idea of the series is to provide stimulating discussion of the various subjects included in the secondary curriculum—educational values, organization of courses, methods of teaching, helps for the teacher, etc.

Among the public lectures lately given at the College are the following: Professor Barrett Wendell—"Why we should study the colonial period of our history"; President Charles D. Mc-Iver—"Education in the South"; Dr. Robert P. Keep—"The old New England academy"; Professor H. Morse Stevens—"Great endowed schools of England"; Principal C. E. Franklin—"Education"; Dr. Julius Sachs—"The Classics"; Professor Calvin Thomas—"The Modern Languages"; President J. M. Taylor—"Ideals in education."

Dean Russell's graduate class have made two excursions in connection with their work. In November they visited the Hampton Institute and inspected its academic and industrial teaching. A conference of the Hampton teachers and the visitors was held for the consideration of matters relating to the courses of study and methods of teaching peculiar to the Southern schools for negroes. Later the class visited the Trenton Normal School to study methods of conducting practice teaching.

Professor Lloyd sailed for Europe in January. He expects to spend the next few months in the laboratory of Professor Strassburger, pursuing investigations in plant embryology and cytology.—Mr. J. E. Kirkwood has been appointed instructor in botany at Syracuse University.—Mr. C. B. Dyke, a graduate student in 1898-9, and since director of the normal department of the Hampton Institute, has been elected principal of the Kamehameha School, Honolulu. He will be succeeded at Hampton Institute by Mr. W. A. Ackermann, recently a graduate student of Teachers College.

L. M. B.

STUDENT LIFE

Columbia.—The hard and conscientious preliminary practice afforded the chess team by the Princeton, Pillsbury, and other matches bore fruit during the Christmas holidays in a decisive victory over Harvard, Yale and Princeton, in the annual intercollegiate match. The teams consisted this year of four men from each college, thus making them more representative of the true strength of the respective institutions. On the first day the Harvard and Columbia teams were pitted against each other and the blue and white succeeded in scoring three draws and a win over their principal competitors. Princeton proved entirely too strong for Yale and succeeded in securing three and one-half out of a possible four points. On the second day of the tournament Columbia took the lead by beating Yale in the same way Princeton had done the day before. On the third day Columbia was pitted against Princeton and increased its lead by winning two and a half games.

The final scores of the colleges and the individual scores of the Columbia men follow:

									Won	Lost
Columbia .									. 81/2	31/6
Princeton									. 6	6
Harvard .									. 6	6
Yale									. 31/2	81/2
Falk									. 2	1
Sewall									. 21/2	3/6
Schroeder									. 11/2	13/2
Keeler									. 21/2	3/4

The intercollegiate trophy is now on exhibition in the Library. The debate with Pennsylvania was lost by the Columbia representatives, Tuttle, Wood, and Parks, after a well-contested argument. The judges were Hon. George Gray, of the United States Circuit Court; Hon. James M. Beck, Assistant District Attorney of the United States, and Chief Justice Sterrett, of Pennsylvania. Judge Gray, in rendering his decision, spoke in flattering terms of the ability shown by the members of both teams and said that in point of simple oratorical ability the Columbia speakers excelled. Pennsylvania won, however, by the breadth of ground covered by their arguments and by the variety of illustrations used.

Preparations for the debate with Cornell, which is to be held at the Lenox Lyceum in New York on March 7, are now well under way, the final selection of the team having resulted in the choice of B. M. L. Ernst, Law 1902; E. H. Cardozo, Law 1902, and C. A. Baker, Law 1902, with A. G. Hays, College 1902, as alternate. The subject for debate will be: "Resolved, That the second part of Section 2 of the fourteenth amendment should be retained as an integral part of the Constitution and rigidly enforced." Columbia will uphold the affirmative. The present would seem to be a critical period in the history of debating at Columbia. Since the formation of the leagues with Pennsylvania and Cornell, two debates have been held and both have resulted in defeats. Concurrently with this state of affairs exists the fact that interest in debating has steadily fallen off, until at the last trials a mere handful of competitors and spectators were present-the major part of the audience being made up, as Spectator put it, of the five judges. It is evident that something will have to be done to rouse the flagging interest in this branch of intercollegiate competition, if Columbia is to maintain her debating prestige.

The "Soph Show" was given on the night of December 18 at the Carnegie Lyceum, succeeding admirably in its chief object, that of giving amusement to the audience. During the Christmas holidays performances of the show were given at Montclair and Lakewood, a cordial reception being tendered the men at both places. The "Varsity Show" was given at the Carnegie Lyceum during the week of February 18 and at Montclair on Tuesday of the following week. All the performances were well attended and the audiences seemed to enjoy the show, both from a musical and artistic point of view. The element of burlesque was large and was taken advantage of by the players to the fullest extent. Spence as Woodbe Actor, Bühler as the Princess, and Blun as Hochheim, were all taking features of the play.

Of the social organizations the Deutscher Verein, during the last month or so, has been the most active. Through the kindness of Mr. Heinrich Conried, the director of the Irving Place Theatre, "Minna von Barnhelm" was produced for the benefit of the Deutscher Verein and over \$350 was netted for the benefit of the Verein library.—Just prior to the mid-year

examinations a meeting of King's Crown was held as a sort of farewell to Professor Jackson, whose departure for India was but a few days distant.—At a joint meeting of the French societies of Barnard and Columbia a play was selected for production, "Les deux Timides," a comedy, by Marc Michel and E. Labiche. It will be given on the 13th and 15th of April, and the parts will probably be assigned by competition.

JULIAN C. HARRISON

Barnard.—The social entertainments of the past winter have been numerous and varied. The season began with a reception for new students by the Y. W. C. A. This was followed by the usual succession of class entertainments, which included dancing, games, and impromptu dramatics. The French society gave a formal reception to which were invited the Romance faculty, the members of the French society of Columbia and all the students in the French classes in both Barnard and Columbia. Later in the year the club met to hear a reading by Professor Cohn of the plays under consideration for acting by the joint clubs. The German society gave a formal reception in addition to its informal meetings and it has also given privately a little German play. There have been two dances of the series of the "short and earlies," which have been well attended and very pleasant.—The first of the undergraduate teas was marked by decorations in the colors of the different colleges and the second was made gay by Christmas greens.—The residents of Fiske Hall gave an evening reception with dancing, which was largely attended by members of the University and outside friends. This was the first entertainment given by Fiske Hall and was thoroughly successful.

There has also been the usual interest in theatricals. The A. Z. chapter of Kappa Alpha Theta gave "Fennel" by François Coppée, a more ambitious play than is usually given by the societies. The sophomores entertained the freshmen with J. K. Bangs' "A Proposal Under Difficulties."

The College Settlements Chapter held a most interesting meeting that was largely attended by members of Columbia and Teachers College as well as Barnard. The meeting was addressed by Mr. George, the head of the George Jr. Republic, and an informal discussion of his work followed.

The Basket Ball Club gave the farce "A Regular Fix" for the benefit of its deplenished exchequer, with very successful results. In October the team went to Bryn Mawr College and played against the Bryn Mawr team, but was defeated by the team work of its opponents despite the very brilliant individual playing of its own members.

The Barnard chorus is more formally organized this year, being supported by friends of the College, and led by Professor Hinrichs.

COLUMBIA ATHLETIC RECORD

The track team enjoys thus far this year the unique distinction of having cleared off enough of its debt to gain the assent of the Faculty Athletic Committee to its further participation in athletics, and the result on the whole seems fortunate. The track team this year seems to have an advantage over that of last year in other than financial ways. Trainer Hjertberg is far more conscientious and able than his predecessor, and has succeeded thus far in developing the men whom he has under him to competent performers. The facility with which most of the records for the gymnasium track were replaced by new ones in almost every instance speaks as well for the trainer as it does for the men. On an average the men, too, are better. Though Columbia lacks the services this year of such a star as Maxey Long, the result may be salutary in that we shall cease to rely entirely on the services of one man to win our races. The futility of such a policy was shown last year in the intercollegiates, when the one man we did depend on failed at the crucial moment. The relay team has already distinguished itself in several races and with added experience should do even better. In the mile Columbia seems to be especially strong, as the capture of the first and third places at the Knickerbocker A. C. games by Marshall and Baker, respectively, would indicate. In the weights too an improvement is becoming manifest and our highjumpers, though far from the record as yet, are showing a commendable improvement, which is to be attributed in large measure, in our opinion, to the methods of Mr. Hjertberg.

There seems to be awakened on all sides at last a firm determination to place the crew in its old station in Columbia athletics and to compel once more in our rowing affairs both the admiration and support of the undergraduates. The first step to the accomplishment of this purpose was taken last June when Hanlon was secured as coach. The second step was the response made by the university to Captain Irvine's call for candidates for the crew. There are more than fifty men trying for positions in the varsity boat, notwithstanding the fact that there are several oarsmen in college who have not come out. The fact that there are very few freshman out for seats in the freshman boat is the only discouraging fact in the crew question, if we except the rather important one of finances.

This question seems to be to a certain extent a perennial spring of trouble and is as far as ever from being settled. It was planned to secure two hundred and fifty members from the three upper classes to the Columbia University Boat Club, resuscitated for the purpose of collecting dues, but the plan has been attended with difficulty thus far. Whether the plan succeeds in 1901 or not, it is an open question whether \$5,000 dollars is a fair amount to ask the undergraduates to raise for the support of a single sport. There certainly seems to be room for doubt on the question. Columbia men give as much to their teams as do men at other universities and they are quite as willing to do it as are men elsewhere. It seems as if we had risen so rapidly that we have hardly a firm enough athletic foundation to support the superstructure. But we believe it is none the less certain that the only way to remedy matters is to make an extra exertion for a year, or perhaps two, until we find ourselves in a better situation. Our rise in the football world has been attended with considerable disturbance which has affected all our athletics more or less, but we may rest content with the belief that a little sanity and balance will soon set things right.

The manager for the football team of 1901 is Mr. C. A. Dana. The situations is not at all settled and it will require considerable preparation and some lapse of time before any satisfactory plan or policy can be outlined. The question of a field is the most trying one with which the new manager will have to deal.

The baseball schedule is now in the hands of the Faculty Athletic Committee, but cannot receive their approval until the debt, which amounts to more than \$500, has been cancelled. The schedule is an excellent one and should of itself serve to renew interest in the game at Columbia.

The basket ball team representing the University is now in the first year of its existence. Though the games played thus far have not resulted in a great number of victories, a start has been made and with excellent opportunities for practice the improvement should be rapid and continuous.

The foncing toam in the recent tournament under the auspices of the Amateur Fencers League of America secured third and fourth places respectively. The reorganized hockey team is of course a poor substitute for the regular varsity combination and their first game with Princeton resulted in a defeat. It is hoped that the result will be but an encouragement to renewed effort.

J. C. H.

THE ALUMNI

The names of three alumni have been perpetuated by endowments recently given to the University. Through the gifts of Miss Maria L. Campbell and Miss C. B. Campbell two scholarships have been established in the College in memory of Robert Bayard Campbell, '44, and Henry Pearsall Campbell, '47; of whom the former, a lawyer, died in 1883, and the latter, a merchant, died in 1886. By the will of Benjamin D. Silliman, a graduate of Yale, but an honorary alumnus of Columbia, \$10,000

is left to the University for the endowment of the William Mitchell Fellowship. Judge Mitchell, after whom the fellowship is to be named, was graduated from the College in 1820, and he subsequently took an A.M. In 1863 the degree of L.L.D. was conferred upon him. He was a master in chancery from 1840 to 1843, and a justice of the Supreme Court from 1850 to 1858. He was an incorporator of the Alumni Association and served for several years as its president, an office in which he has been succeeded by his son, Edward Mitchell, '61, the present president.

The sixth annual meeting of the Alumni Association of Columbia University in Colorado, was held at the University Club, Denver, Feb. 2, 1901, with Carlton M. Bliss, '88 Law, in the chair. About twenty alumni were present-which was not as many as was desired, but this may be accounted for by the fact that the association covers a large area and it is impossible in many cases for those living away from Denver to be present, The report of the secretary and treasurer showed the association to be in good condition. The names and addresses of 110 alumni of the University appear upon the records of the association, of whom 67 are enrolled as members. It is hoped that this number will be increased during the current year. After the meeting the annual banquet was held at the University Club. The decorations in blue and white were rendered especially eff ctive by having the word Columbia in white electric lights on a blue background at the end of the room. Much enthusiasm for Alma Mater was displayed and the speeches and songs awakened memories of the past. The following officers were elected for the ensuing year: President, Dr. C. A. Powers, '83; Vice-president, H. Van F. Furman, '81; Secretary and Treasurer, James D. Benedict, '99.

The class of 1900, College, held their first reunion on Jan. 26, at the Arena, on West 31st Street. There were thirty-one men present. After the dinner, which was enlivened by music and the swapping of experiences. there was a short business meeting. A letter was read from Professor Woodberry expressing his appreciation of the dedication to him of the "Naughty-Naughtian," and by a unanimous vote of those present Professor Woodberry was elected an honorary member of the class of 1900. The treasurer's report showed a balance of about \$100, and it was decided that the class dues of one dollar a year should be continued with the object of accumulating a fund which in time might be available for a suitable gift to Columbia. When the question of the football management was brought up it was found to be the practically unanimous opinion of the class that a radical change should be made from the system of the last two years. Accordingly a resolution was adopted to the effect that it is the sense of the class of 1900 that a graduate advisory manager of the football team should be elected by the undergraduates, who shall determine the plans and financial policy of the team and have supervision of its general management.

The QUARTERLY is informed by a member of the class of '74, College, that the statement in our last number, page 87, to the effect that no other

class except that of '92 has been able to hold regular reunions is erroneous. Our correspondent writes that the class of '74 celebrated the close of its freshman year with a dinner and from that time to this has maintained its organization without a break and met for social and business purposes at least once each year.

The first reunion dinner of the class of 1900, Applied Science, was held at the Arena on Friday evening, Jan. 4. Dawson Burns, president, presided. Of the other officers H. A. Brown was present, but W. P. Buggs, the secretary and treasurer, was working in Nova Scotia and could not get away. Twenty-four of the class were assembled and discussed everything that had happened since graduation. Several men are out west and in Mexico, and two in South Africa. After informal speeches the dinner broke up at a late hour.

NECROLOGY

Columbia College.

Thomas W. Odgen, A.B. '29, one of the two oldest living graduates of the College, died at Morristown, N. J., Jan. 12, 1901, aged 91 years. He was also one of the oldest members of the New York Stock Exchange, and he served at various times as a manager of St. Luke's Hospital, a trustee of St. Stephen's College, a trustee of the General Theological Seminary, and of the New York Society for Promoting Religion and Learning.

Rev. Daniel McLaren Quackenoush, A.B. '36, S.T.D., died at 3 East 94th St., Aug. 24, 1900, aged 81 years.

William Greene Ward, A.B. '51, died Jan. 16, 1901, at 351 Lexington Ave., aged 69 years. At the time of his death he was a brigadier general, 1st brigade, 1st division, N. G. S. N. Y. He had previously served as lieutenant-colonel of the 12th U. S. reg. N. Y. State Militia, from Apr. 10 to Aug. 4, 1861, and was colonel from May 31 to Oct. 8, 1862. He participated in the defense of Harper's Ferry and later in the Pennsylvania campaign. He was a grandson of Lieut.-Col. Samuel Ward of the revolutionary army, and was president of the New York State Society of the Cincinnati.

Benjamin L. Curtis, A.B. '55, A.M., died at 10 West 43d St. on June 16, 1900, aged 68 years.

Langdon Greenwood, A.B. '61, A.M., counsellor-at-law, died fat Atlantic City, Jan. 25, 1900, aged 60 years.

Philip Justice Sands, A.B. '63, died at 15 East 33d St., October 18, 1900, aged 57 years.

Henry Rutgers Beekman, A.B. '65, LL.B. '67, died Dec. 17, 1900, aged 55 years. An extended notice of the life of Judge Beekman is printed elsewhere.

Harry Madison Jones, A.B. '69, L.L.B. '77, died at 25 East 30th St., Dec. 3, 1899.

Henry L. Riker, A.B. '80, died at Sea Bright, N. J., Aug. 13, 1900, aged 40 years.

Chorles Smith Collins, A.B. '81, A.M. '84, died at 2183 Broadway, May 20, 1900. In 1885 Dr. Collins graduated from the College of Physicians and Surgeons, and he was health officer of the town of Sing Sing in 1886-87.

Zabriskie Ackerson, A.B. '86, died at Hackensack, New Jersey, Dec. 15, 1900.

William F. Byland, A.B. '87, A.M. '88, died at Summit, N. J., Dec. 10, 1899, aged 33 years.

George G. Saxe, A.B. '87, M.D. N. Y. Univ. Med. Coll. '92, died at Madison, N. J., June 25, 1900, aged 36 years.

Arthur A. Powers, A.B. '97, died at Utica, N. Y., Aug. 15, 1900, aged 24 years.

Herbert A. Sigler, A.B.' 98, died June 6, 1900, at Montclair, N. J., aged 24 years.

School of Medicine.

Gustavus S. Winston, M.D. '63, who died Dec. 29, 1899, at 42 West 39th St., aged 66 years, was a surgeon in the 8th regt. during the civil war and was confined in Libby Prison. He was an attending physician at Bellevue and the Woman's Hospitals and at the Demilt Dispensary.

Stephen E. DeWitt Hoornbeck, M.D. ' 5, died at Ellenville, N. Y., aged 56 years. He served as secretary and treasurer of the Eastern New York Reformatory Commission in 1894.

John W. Robinson, M.D. '67, died at South Lyons, N. Y. Oct. 21, 1900, aged 57 years. He had been county physician since 1890.

Theodore Giddings, M.D. '68, died at Housatonic, Mass., Dec. 28, 1900. He served as a member of the legislature in 1886 and 1888.

Denis Dowling Mulcahy, M.D. '72, died at 77 Bank St., Newark, N. J., aged 60 years.

William H. Lyons, M.D. '77, died Jan. 13, 1901, at 146 West 44th St.

Gustave Mozart Stoeckel, M.D. '74, A.B. Yale, '71, A.M. '74, died at Norfolk, Conn., Feb. 15, 1900, aged 51 years.

John Joseph Crane, M.D. '76, A.B. Princeton, '73, A.M. '76, died at Bloomingdale, Adirondacks, N. Y., April 18, 1900, aged 49 years. He served as house surgeon in Roosevelt Hospital in 1876-77 and as asst. superintendent of the Northern Hospital for the Insane at Elgin, Ill., from 1878 to 1882.

Charles H. Mersereau, M.D. '84, died May 2, 1900, at 860 East 161st St., aged 37 years. He was house surgeon in the Hartford Hospital for two years, and Sanitary Inspector for several years in this city.

Henry B. Carpenter, M.D. '90, A.B. N. Y. University, '86, died at Rochester, March 24, 1900, aged 36 years. He was a member of the house staff in Roosevelt Hospital.

Woolsey Hopkins, M.D. '90, died at the Presbyterian Hospital, Feb-15, 1900, aged 32 years. He was a clinical assistant in the Manhattan Eye and Ear Hospital.

William Menzies, M.D. '90, died on March 10, 1900, at Waterville, Maine.

School of Law.

[A number of recent deaths among the alumni of the Law School have been reported to the QUARTERLY; they will be published in our next number.]

Schools of Applied Science.

H. Walter Webb, R.M. '73, LL.B. '75, died at Scarsborough, N. Y., on June 18, 1900, aged 48 years. He served as a member of the board of education of New York City for several years and was a vice-president of the N. Y. C. & H. R. R. R.

John G, Murphy, E.M. '77, died at Bellevue Hospital, March 15, 1900. He was at various times connected with the Orinoco, the Callao, the Esmeralda and other mining companies and was geologist of Wyoming.

William L. Thorne, Ph.B. (Arch.) '90, McKim Fellow, died at Colorado Springs, Col., May 2, 1900, aged 32 years,

Charles Tomlinson Rittenhouse, E.E. '94, Mech. Eng. Stevens Inst. '93, died at Denver, Col., Feb. 26, 1900.

Llewellyn Le Count, C.B. 1900, assistant instructor in civil engineering, died Nov. 14, 1800, in Brooklyn, N. Y.

Honorary Alumni.

Dr. Charles E. West, A.M. '44, A.B. Union Coll. '32, M.D. University N. Y. '44, LL.D., Rutgers '51, principal Brooklyn Heights Seminary, died at 76 Pierrepont St., Brooklyn, March 9, 1900, aged 92.

Benjamin D. Silliman, L.L.D. '73, A.B. Yale '24, died at 56 Clinton, St., Brooklyn, Jan. 24, 1901, aged 95 years.

Rev. Dr. Richard S. Storrs, L.L.D. '87, A.B. Amherst '39, died at 80 Pierrepont St., Brooklyn, June 5, 1900, aged 79 years.

Moses Coit Tyler, L.L.D. '87, A.B. Yale, '57, Professor of American History at Cornell University, died at Ithaca, N. Y., Dec. 28, 1900, aged 65 years.

Rev. Ezra P. Gould, S.T.D. '91, Professor of Biblical criticism in the Philadelphia Divinity School, died at Whitelake, Sullivan Co., N. Y., Aug. 22, 1900, aged 59 years. He was first lieutenant, 24th Mass. 1861: lieutenant 55th Mass. volunteers (colored) 1863; captain 59th regt., 1864, and major in the same Aug. 20, 1864.

Non-graduates.

Divie Bethune McCartee, '58, died at San Francisco, July 17, 1900, aged 80 years. He received degrees of A.M., and M.D. from the University of Pennsylvania in 1843, and was appointed a medical missionary by the

Presbyterian board of missions, and in 1844 he established a mission in Ningpo and devoted nearly forty years of his life to work among the Chinese. He received a gold medal from the Chinese government for services in suppression of Macao coolie traffic, and later the title of consulgeneral for services in the Chinese Legation. He also received from the Japanese government the decoration of the Fifth Order of the Rising Sun.

Beverly Chew Duer, '60, died Jan. 21, 1900, at 62 West 87th St., aged 60 years.

Frederic Reuben Howes, '87, died at Paris, May 23, 1900, aged 35 years. Walter Collins, '92, died at 312 York St., Jersey City, in November, 1900, aged 28 years.

SUMMARIES OF UNIVERSITY LEGISLATION

THE TRUSTEES. DECEMBER MEETING

The Committee on Buildings and Grounds was authorized to award a contract for the construction of Earl Hall, in accordance with the plans approved by the Committee and by Mr. Dodge.

The action of the President in permitting the exhibit of the University at the Paris Exposition to be placed temporarily on exhibition at Manchester, England, without expense to the University, was confirmed; and the President was also authorized to permit the same exhibit to be displayed at the Pan-American Exposition, to be held at Buffalo, in 1901.

The conferring of the degree of Bachelor of Science (in Education) upon students of Teachers College who satisfactorily complete the requirements for that course, as prescribed by the University Council and approved by the Trustees, was authorized.

The deposit of the Morong herbarium of Barnard College with the New York Botanical Garden, as a part of the herbarium of Columbia University, was authorized.

It was ordered that, in any department of the University except the College of Physicians and Surgeons, free tuition be granted to as many as five Filipinos, upon the request of the United States authorities.

The President reported the election of Professor W. H. Carpenter as secretary of the University Council, in place of Professor Kemp, absent on leave.

THE TRUSTEES. JANUARY MEETING

Mr. W. C. Schermerhorn and Mr. Pine were reëlected Chairman and Clerk of the Board; and the following named gentlemen were elected members of standing committees: Mr. Bangs to succeed Mr. Brown on the Committee on Finance; Mr. Brown to succeed Mr. Rives on the Committee on Honors; Mr. Sands to succeed Mr. Cammann on the Committee on the Library.

The President announced that a bequest of \$50,000 had been left to the University by the late Henry Villard, and it was referred to the Committee on Finance to report as to the disposition of the same when received. The President also announced that Miss Maria L. Campbell and Miss Catharine B. Campbell had each given \$3,000 for the purpose of establishing scholarships in Columbia College, in memory of their brothers, Robert B. Campbell of the class of 1844, and Henry P. Campbell of the Class of 1847. The gift was accepted with thanks, and the Statutes were amended by adding to Chapter XXII a new section (Section 27) establishing the "Campbell Scholarships." Section 19 of the same chapter was amended, reducing the number of faculty scholarships in the College from ten to eight.

The thanks of the Trustees were also voted to Mr. William G. Low for his gift of \$250, \$50 to be used for the American School for Oriental Study and Research in Palestine, and \$200 for the purchase of books on maritime law; and to Mr. William I. Walter for his gift of \$200 for the American School for Oriental Study and Research in Palestine; to Mr. Seth Sprague Terry for his gift to the University of a valuable collection of photographs made by his uncle, Mr. Joseph W. Sprague, and to Mr. William I. Walter, Mr. Seth Sprague Terry, Miss Terry, Mr. Gustavus T. Kirby, Mr. Frank W. Savin, and the American Art Association, for their gift of a handsome Japanese cabinet containing the collection of photographs; also to Miss Ida H. Ogilvie for her gift to the Law Library of certain law books from the library of her father.

It was referred to the President and the Committee on Buildings and Grounds, with power, to provide a suitable exhibit of the University at the Pan-American Exposition to be held in Buffalo, from May to November, 1901; and the sum of \$3,000, or so much thereof as might be necessary, was appropriated for the purpose.

The President was authorized to grant a leave of absence to Professor Jackson, from and after January 26th, 1901, for the remainder of the current academic year; and to make temporary provision for the conduct of Professor Jackson's work during his absence.

The President was authorized to allow Dr. S. A. Mitchell, tutor in astronomy, to accept the invitation of the Astronomical Director of the U. S. Naval Observatory, to go to Sumatra on the U. S. Government expedition to observe the total solar eclipse of May 18th, 1901, provided that the funds necessary to supply a substitute during Dr. Mitchell's absence be secured.

The following appointments were confirmed: Myron H. Falk, E.M., C.E., assistant in civil engineering from and after November 15th, 1900, for the remainder of the current year, vice Mr. Le Count, deceased; James Ditmars Voorhees, M.D., secretary of the faculty of medicine from and after January 1st, 1901; Ernest Valentine, M.D., assistant in pathology, from and after December 1st, 1900, for the remainder of the current year, vice Philip S. Sabine, M.D., resigned; D. Stuart Dodge

Jessup, M.D., assistant in normal histology from and after January 1st, 1901, for the remainder of the current year, vice Ernest N. Wilcox, resigned; Joseph Singleton McCord, B.S., assistant in mineralogy, from and after January 1st, 1901, for the remainder of the current year, vice H. P. Whitlock, resigned.

THE TRUSTEES. FEBRUARY MEETING

The Finance Committee reported a gift of \$839, from Alexander M. Welch, '90, School of Architecture, in repayment of fees remitted to him while in the University, and it was voted to apply the amount to the construction of a set of models to illustrate the history of vaulting, to be known as the "Welch Models."

The President reported the following gifts: a photograph of the late Dr. Egleston with the diploma and decoration awarded him as an officer of the Legion of Honor, presented by Miss Matilda C. McVickar; a bronze bas relief of Professor John S. Newberry presented, by his children, and a reproduction of the sword of Agamemnon found by Dr. Schliemann at Mycenae, given by J. Ackerman Coles, M.D. '64.

The President was authorized to respond to the invitation of the University of Glasgow to take part in the celebration of the 450th anniversary of its foundation, to be held in June next, and to appoint a representative.

The Trustees confirmed the appointment of Walter C. Kretz, Ph.D., as lecturer in astronomy and Frank W. Chandler, Ph.D., as assistant in comparative literature, vice Dr. Underhill resigned.

The President reported the election by the Faculty of Pure Science of Professor Wilson as delegate to the University Council, in place of Professor Kemp resigned, and the election of Professor Munroe Smith as acting secretary of the Faculty of Political Science during the absence of Professor Goodnow.

UNIVERSITY STATISTICS.

For the proper understanding of the following tables certain explanations are necessary. With respect to the perplexing item of double registration it is to be borne in mind that a considerable number of Columbia students are at all times registered under more than one of the three corporations composing the University. To credit them to one alone would involve a more or less arbitrary procedure and would give a wrong impression. We have preferred, therefore, first to credit each corporation with its full number of students and then to make a deduction from the total for names counted twice. So also there are more than a hundred students who attended the summer session of 1900 and have now returned and registered under various faculties. Here again the summer school is credited with its full quota of attendance and the necessary deduction is made for double registration.

The first table aims to show the comparative registration of a number of representative universities in the east and in the west. Owing to

great differences of internal organization and administration it is next to impossible to make such a table perfectly scientific. We believe that the figures presented are as free as possible from misleading error.

The second table shows that there is a gain of 8.55 per cent. in the number of students now in attendance at Columbia as compared with the corresponding time last year. Considering each of the three corporations composing the University separately, it appears that the gain within the Columbia College corporation (including Columbia College, the Schools of Applied Science, and the Schools of Law, Medicine, Political Science, Philosophy, and Pure Science), amounts to 5.3 per cent. Barnard College exceeds its enrollment of last year by 24.17 per cent. Teachers College has increased by slightly over 34 per cent. These two colleges contribute almost two-thirds of the increase in the net total of resident students. The exceptional increase of 504 in the grand net total, amounting to about 13 per cent. over the corresponding total of last year, is due mainly to the large enrollment at the first summer session. Of the 417 students registered in the summer school 108 are now on duty in the University.

Registration at Various Universities on or about Feb. 7, 1901.	California.	Chicago.	Columbia.	Cornell.	Harvard.	Michigan.	Minnesota,	Pennsylvania	Yale.
College (men)	2007 169 21 171	} 975 330	475 298 544 422 423 798	}746 880 192 176 336	1992 449 509 398 64 60	638 591 353 80 809 591	592 347 177	338 145	610 304 213 135
Teachers College School of Theology School of Dentistry School of Agriculture . School of Art School of Forestry.	152	499 180	512	174	28 126 33	278	590	417	89 75 7
School of Music School of Pharmacy Veterinary School	84 * 433	1790	679 417 30 206	41 464 27	18 987 62	404		60 247 41 9	126
Net total	3216	8774	4392	3004	5740	3813	3423	2573	2544

^{*} Included in statistics of college and scientific schools.

Registration at Columbia, February 7, 1901 and 1900.	First Year.	Second Year.	Third Year.	Fourth Year.	Specials.	Unclassified.	Graduates.	Total, 1901.	Total, 1900.	Gains.
Columbia College	89 81	98 51		128 52				475 298	460	25
Total undergraduates								778	700	73
Faculties of Political Science Philosophy and Pure Science Barnard College							422 ‡	422 ‡	328	717
Total non-professional graduate students							422	422	405	17
Faculty of Applied Science Faculty of Law	173 245	130 148 190 29	150	147	66		158	423 798	379 796	44
Total professional students								2277	2045	232
Deduct double registration § Net total resident students in University								98 3374	3108	56 260
Summer Session, 1900 Auditors Exten. students, Teachers College Deduct double registration Net total other students								417 30 679 108 1018	30 750 0	IOS
Grand net total o								4392	3888	504

*The figures here given for the enrollment of 1900 in the graduate schools and Teachers College differ slightly from those found in the QUARTERLY of a year ago. The numbers there given have been changed to accord with the present system of accounting for double registration.

† Women graduate students are now registered in the graduate schools of Political Science, Philosophy, and Pure Science. Hitherto they were registered in Barnard College.

† The number 422 does not include 110 students registered under the faculties of Law, Medicine, and Applied Science, who are also candidates for the degrees of A.M. or Ph.D.

§ The 98 are distributed as follows: 8 in Columbia College, 23 in Barnard, and 12 in the graduate schools are also enrolled in Teachers College. On the other hand, 55 in Teachers College are also candidates for the degrees of A.M. or Ph.D., in the graduate schools.

¶ Summer school students who have re-registered and are now on duty,

© Excluding 686 pupils in the Horace Mann and Experimental schools of Teachers College.

|| Extension students in Teachers College are required to do as much work as those taking the same courses in the College, and are subject to the same examinations. The great majority of them are candidates for a Teachers College diploma.

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